

Should You Buy System 7.6? • Run Java Programs on Your Mac

A P R I L 1 9 9 7

Macworld

THE ESSENTIAL MACINTOSH® RESOURCE
www.macworld.com

Apple Strikes Back

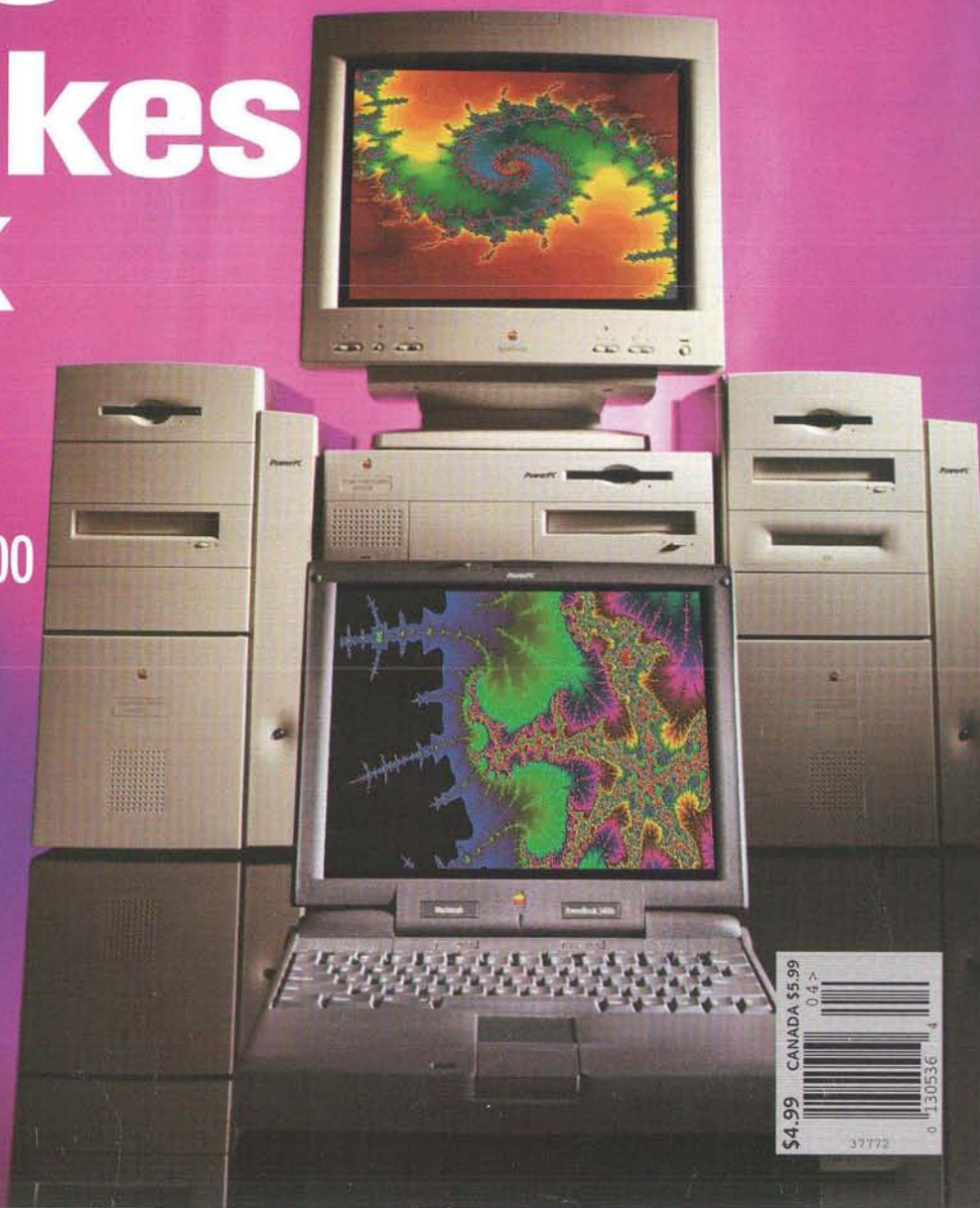
**Terrific New Macs
Offer Best Value Yet**

**New PowerBook 3400
Soars at 240MHz**

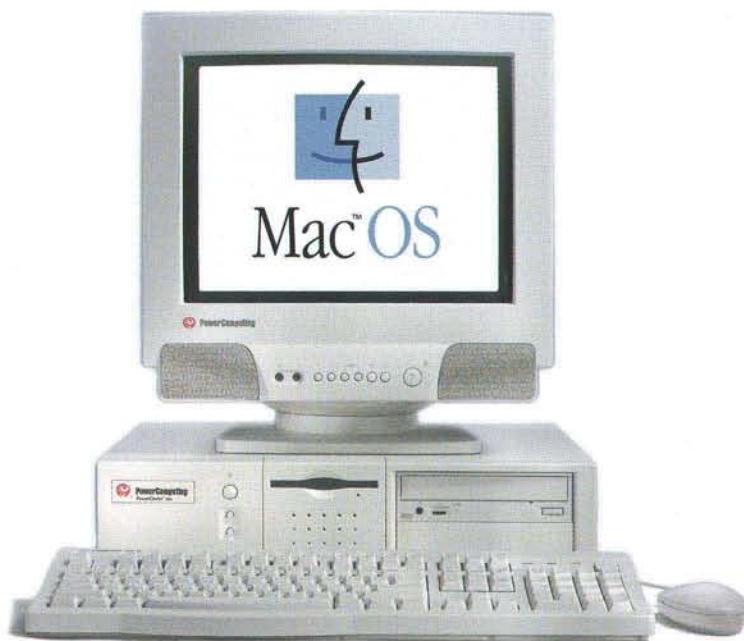
ALSO

**The Best
33.6-Kbps Modem**

**Update Your
Web Site Instantly**



MAC OS SYSTEM AWARDS FOR 1996, OR PRICES TO CELEBRATE.



POWERBASE 200 COMPLETE CORE SYSTEM

\$1995

200MHz 603E W/POWER 15" DISPLAY***

- 16 MB RAM (160 MB Max)
- 1.2 GB EIDE Hard Drive
- 8x CD-ROM Drive
- 256K Level 2 Cache
- 3D On-board Hardware Graphics Acceleration
- Upgradeable 2 MB DRAM Based Video (4 MB Max)
- 3 PCI Expansion Slots
- Upgradeable CPU Daughtercard
- Extended Keyboard and Mouse w/PS2 Support
- 33.6 Global Village Modem

GET A POWERBASE™, THE MACWORLD "BEST MAC OS SYSTEM OF THE YEAR"

Finding a basic, yet powerful Mac OS system that's able to grow with you has always been tough. But not any more, thanks to our new PowerBase™ line.

No system in the history of the Mac has offered this much performance at a price that virtually anyone can afford. We made



your choice simple. And the experts agree. The PowerBase just received the Best Mac OS System of the Year from Macworld magazine to round out a first year in which it also saw praise as the Editor's Choice for best Education/SOHO machine (also



from Macworld) and became only the second system

in nearly a decade to get five mice from MacUser. Awards like these for a new Mac OS line are unprecedented, but when you look at PowerBase's features, you'll see why.



You can get a PowerBase 240/603e with 16 MB of RAM, a 1.2 GB Hard Drive, accelerated 3D graphics and a 8X CD-ROM for just \$1995 (or get a 180MHz machine for just \$1,495). Numbers like these are hard to argue with.



PowerComputing

ORDER DIRECT 800-410-7693

WE'VE JUST SWEEPED ALL OF THE M SO WE'RE DROPPING OU



POWERTOWER PRO 200 COMPLETE CORE SYSTEM

\$3995

200MHz 604E

64MB RAM

POWER 17" DISPLAY**

- 2 GB 5400 RPM HD
- 8X CD-ROM Drive
- 1 MB Level 2 Cache
- 2MB VRAM 64bit Accelerated PCI Graphics Card
- 6 PCI Expansion Slots
- Interleaved Memory
- 9 Drive Bays
- Upgradeable CPU Daughtercard
- 33.6 Global Village Modem
- Macromedia Director 5.0

GET A POWERTOWER™ PRO, THE MACUSER "BEST MAC OS SYSTEM OF THE YEAR"

Choosing which Mac™ OS system to buy is getting easier and easier. If what you're looking for is top performance at



a great price, then look no further than the PowerTower Pro. This machine has everything that you could possibly want in a high-end system. It's the fastest single-processor machine on the market, it's the most expandable system on the market, and it's gotten more awards and accolades than any other system.



But the best thing about the PowerTower Pro is that you don't have to pay a fortune to get it. It's loaded with a minimum of 32MB of RAM, a fast 2GB hard drive, a huge



1MB level 2 cache, an 8X CD-ROM, an IMS Twin Turbo 128bit graphics card with 8MB of VRAM, nine drive bays, six PCI slots, interleaved memory, and a 30-day no questions asked money-back guarantee. All starting at just \$4295 (\$3295 for a slimmed-down core configuration).



This is probably why the PowerTower Pro pretty much swept all the awards this year. It has received the MacUser Eddy Award for Best Mac OS System, Mac Product of the Year from Macworld Magazine, Macworld Magazine's Editor's Choice Award, Five Mice from MacUser, and rave reviews from both experts and consumers alike.



**WHEN IT COMES TO FIGHTING BACK FOR THE MAC,
IT SEEMS WE'VE GOT THE MOST DECORATED SOLDIERS.**



Macworld Magazine Product of the Year: PowerTower Pro
Macworld Magazine MacOS System of the Year: PowerBase
MacUser Magazine MacOS System of the Year: PowerTower Pro
Macworld Magazine Outstanding Achievement Award
Macworld Expo San Francisco Best of Show
Macworld Expo Boston Best of Show

POWERTOWER PRO 225 MP: FASTEST MULTIPROCESSOR MACS EVER



POWERTOWER PRO 225MP COMPLETE MAC SYSTEM

\$6995

**DUAL 225MHz 604E
128MB RAM
SONY 20" SFI DISPLAY***

- 2 GB 7200 RPM HD
- 8X CD-ROM Drive
- 1 MB Level 2 Cache
- IMS Twin Turbo w/8MB VRAM
- 6 PCI Expansion Slots
- Interleaved Memory
- 9 Drive Bays
- Upgradeable CPU Daughtercard
- 33.6 Global Village Modem
- Macromedia Director 5.0

POWERTOWER PRO 225MP STARTER CONFIGURATION

\$4995

**DUAL 225MHz 604E
32MB RAM**

- 2 GB 7200 RPM HD
- 8X CD-ROM Drive
- 1 MB Level 2 Cache
- IMS Twin Turbo w/8MB VRAM
- 6 PCI Expansion Slots
- Interleaved Memory
- 9 Drive Bays
- Upgradeable CPU Daughtercard
- Macromedia Director 5.0

POWERTOWER PRO 225: THE FASTEST SINGLE-PROCESSOR MACS ON THE PLANET



POWERTOWER PRO 225 COMPLETE SYSTEM

\$4995

**225MHz 604E
64MB RAM
POWER 17" DISPLAY****

- 2 GB 7200 RPM HD
- 8X CD-ROM Drive
- 1 MB Level 2 Cache
- IMS Twin Turbo w/8MB VRAM
- 6 PCI Expansion Slots
- Interleaved Memory
- 9 Drive Bays
- Upgradeable CPU Daughtercard
- 33.6 Global Village Modem
- Macromedia Director 5.0

POWERTOWER PRO 200 CORE CONFIGURATION

\$3295

**200MHz 604E
16MB RAM**

- 2 GB 5400 RPM HD
- 8X CD-ROM Drive
- 1 MB Level 2 Cache
- 2MB VRAM 64bit Accelerated PCI Graphics Card
- 6 PCI Expansion Slots
- Interleaved Memory
- 9 Drive Bays
- Upgradeable CPU Daughtercard
- Macromedia Director 5.0

POWERBASE: THE ULTIMATE ENTRY LEVEL SYSTEM



POWERBASE 200 COMPLETE SYSTEM

\$2495

**200MHz 603E
W/17" DISPLAY**
32 MB RAM**

- 1.2 GB EIDE Hard Drive
- 8x CD-ROM Drive
- 256K Level 2 Cache
- 3D On-board Hardware Graphics Acceleration
- Upgradeable 2 MB DRAM Based Video (4 MB Max)
- 3 PCI Expansion Slots
- Upgradeable CPU Daughtercard
- Extended Keyboard and Mouse w/PS2 support
- 33.6 Global Village Modem

POWERBASE 200 STARTER SYSTEM

\$1695

200MHz 603E

- 16 MB RAM (160 MB Max)
- 1.2 GB EIDE Hard Drive
- 8x CD-ROM Drive
- 256K Level 2 Cache
- 3D Onboard Hardware Graphics Acceleration
- Upgradeable 2 MB DRAM Based Video (4 MB Max)
- 3 PCI Expansion Slots
- Upgradeable CPU Daughtercard
- Extended Keyboard and Mouse w/PS2 support
- Low-Profile Enclosure

**GET ANY OF
THESE SYSTEMS
SHIPPED IN
48HRS
OR LESS***

**CONFIGURE YOUR
DREAM SYSTEM THE
WAY YOU WANT IT
WITH ANY OF THESE
GREAT OPTIONS:**

- IOMEGA 100MB ZIP '145
- IOMEGA 1GB JAZ '395
- ULTRA SCSI/RAID SOLUTIONS
STARTING AT '1985
- GLOBAL VILLAGE 33.6
MODEM & INTERNET KIT '179
- * CUSTOM CONFIG & MP
SYSTEMS MAY TAKE LONGER

SERVICE & SUPPORT

- 30 day money back Guarantee
- Toll-free lifetime technical support
- 1, 2, or 3-year on-site service
available, starting at \$49.

**CONFIGURE IT ANY
WAY YOU WANT.**

**ORDER DIRECT
FROM THE
MANUFACTURER
800-410-7693**

<http://www.powercc.com>

2555 North IH 35, Round Rock, TX 78664-2015

Tel. 512/388-6868 Fax. 512/388-6799

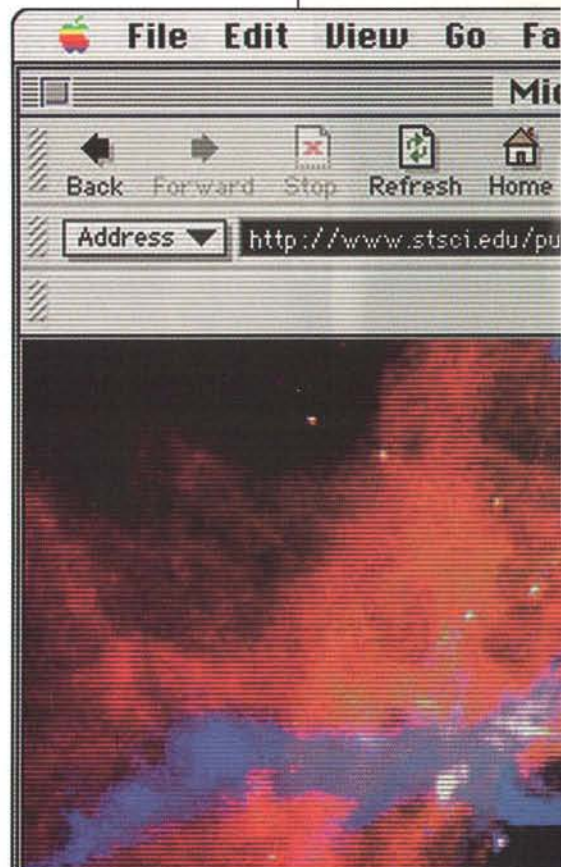
Internet: info@powercc.com

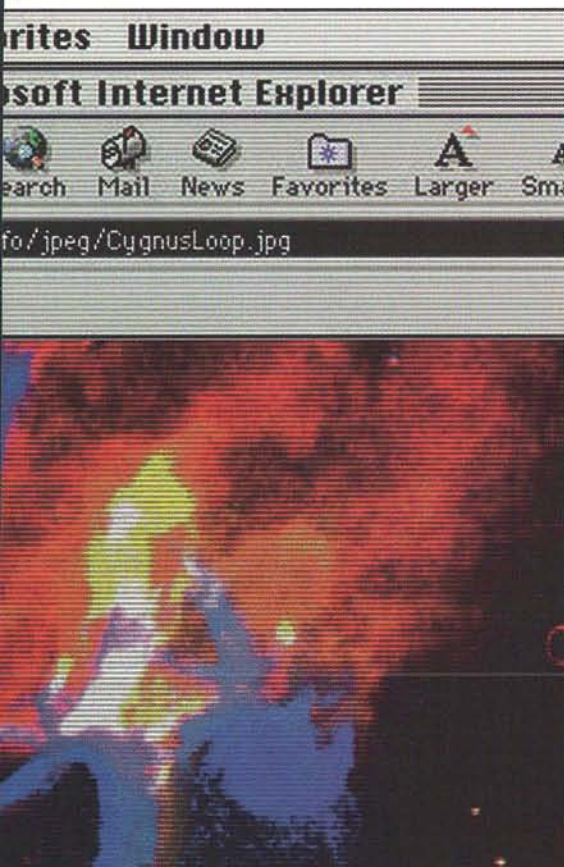


PowerComputing

Microsoft Internet Explorer 3.0 for Macintosh. Does Netscape come with an uninstall program?

Let's look at the facts. Microsoft® Internet Explorer 3.0 was designed for the Mac by our Mac developers to be faster and easier to use. It requires no upgrade since it runs on existing Macs like 680x0 and Power Macs, and it only needs a 4MB RAM partition. (Netscape eats an 8MB partition.) Internet Explorer 3.0 supports Stylesheets, ActiveX™, Java™ and native Mac technologies like QuickTime, QuickTime VR and AppleScript. It gives you lots of killer ways to customize your Web experience, as well as convenient access to e-mail and newsgroups. Microsoft Internet Explorer 3.0 is quicker and smarter and smaller and, incredibly enough, it's free.* You can do a quick download from the Microsoft Web site, or call AT&T for a WorldNet connection and a free disk at 1-800-967-5363 ext. IE3. You may even want to keep Netscape for nostalgic reasons.





Where do you want to go today?®

www.microsoft.com/ie/

Microsoft®

Macworld

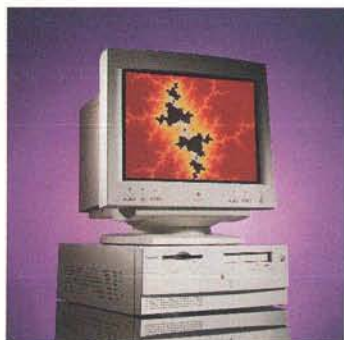
Features

LAB TEST

- 98 More Mac for Your Money**
BY TOVA FLIEGEL Faster speeds and a smart design make Apple's three new Power Macs a compelling choice for savvy users.

LAB TEST

- 106 PowerBook with a Punch**
BY CARY LU Apple's 3400c sports a 240MHz processor, 3GB of hard drive, and a CD-ROM. Macworld Lab takes one for a spin.



Apple reinvigorates its Mac line with the Power Mac 4400, page 98.

- 108 State of the PowerBook**
BY CARY LU How Apple's decision to remain the only provider of PowerBooks has backfired.

ON THE COVER

Photograph by Paul Franz-Moore; screen images by Tony Stone Images.

- 110 PowerBook Superguide**
BY CARY LU Specs and prices on every PowerBook and Duo model Apple ever made, along with advice on choosing the portable that best suits your needs.

Internet Essentials

- 114 Online On Time**
BY JIM HEID Put the power of a database behind your Web site with today's interactive tools.

LAB TEST

- 123 Beyond 28.8**
BY DEAN ANDREWS Macworld Lab tests nine 33.6-Kbps modems to find out if their speed is worth the price. Plus, we rate five fax software packages.



Instant tax information, in NetSmart, page 133.

News

- 28 The Mac OS Strategy**
System 7.X, Rhapsody, and software compatibility—what users need to know.

Mac OS in Focus

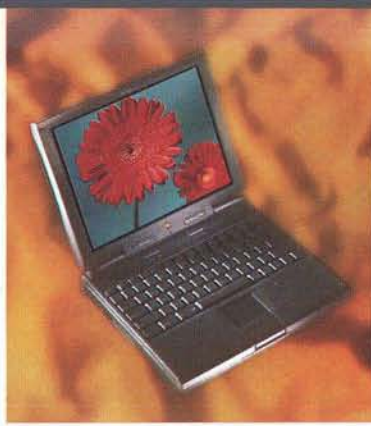
- 34 System 7.6—Why Upgrade?**
Ho-hum features and a few bug-fixes, all for \$100.

Sneak Peek

- 36 SiteWeaver**
A preview of the HTML and site-management program.



The speed of things to come—nine 33.6-Kbps modems tested, page 123.



Apple's latest, the performance-driven PowerBook 3400c, page 106.

Opinion

- 17 **Letters**
- 25 **State of the Mac**
BY ADRIAN MELLO What's going on with Apple?
- 218 **The Desktop Critic**
BY DAVID POGUE One man, one deadline, one weekend.
- 14 **How to Contact Macworld**



Unwieldy Control Strip got you down? See Secrets, page 127.

Secrets


- 127 **Control Strip Obedience School**
BY JOSEPH SCHORR Tips to tame your desktop.
- 129 **Quick Tips**
BY LON POOLE Tips, tricks, and shortcuts.
- 133 **NetSmart**
BY CHARLES SEITER Down-to-the-deadline income tax sites on the Web.

Buyers' Tools

- 85 **Star Ratings**
Macworld's ratings for hundreds of hardware and software products at a glance.
- 94 **Mac Superguide**
Macworld's guide to every Mac system and clone on the market, lab-tested and Star-Rated.

Media

- 135 **CD-ROMs Meet the Web**
BY JIM HEID Spice up your disc with live Web links.
- 138 **Publishing Workshop**
BY OLAV MARTIN KVERN Power tips for PageMaker users.
- 140 **Graphics Workshop**
BY CATHY ABES Special effects with Live Picture.

 April 1997, Volume 14, Number 4 Macworld (ISSN 0741-8647) is published monthly by Macworld Communications, Inc. Editorial and business offices: 501 Second St., San Francisco, CA 94107, 415/243-0505. Subscription orders and inquiries should be directed to 800/288-6848 or 303/604-1465. Subscription rates are \$30 for 12 issues, \$60 for 24 issues, and \$90 for 36 issues. Foreign orders must be prepaid in U.S. funds with additional postage. Add \$18 per year for postage for Canada and Mexico subscribers. Add \$69 per year for postage to all other countries. Periodicals postage paid at San Francisco, California, and at additional mailing offices. Postmaster: Send address changes to Macworld, P.O. Box 54529, Boulder, CO 80322-4529. Printed in the U.S.A.

Reviews

- 48 ★★★★★/7.8 **Pilot**
Handheld personal information manager
- 50 ★★/4.9 **ScanJet 5p SE**
Mediocre color scanner
- 52 ★★★/6.2 **Acrobat 3.0**
Adobe's portable document software gets Internet fever
- 54 ★★★★★/7.0 **Pinnacle Micro Apex**
Gigantic 4.6GB MO drive
- 56 ★★★/5.9 **Nisus Writer 5.0.1**
Quirky yet powerful word processor
- 57 ★★★★★/8.8 **4-Sight Fax 4.0**
Flexible, reliable network faxing
- 58 ★★★/6.3 **UniQorn 1.2**
Java-enriched desktop publishing program
- 60 ★★★/5.2 **GlidePoint Keyboard;**
★★★/5.9 **TrackBoard and NumPad**
Touchpad-keyboard combinations compared
- 62 ★★★★★/7.7 **WebStar 2.0.1**
The one and only Mac Web server gets even better
- 64 ★★★/5.7 **TruPhoto**
Desktop photo printer
- 66 ★★/4.1 **Globetrotter 1.1.1**
Buggy, WYSIWYG Web authoring
- 68 ★★★★★/7.0 **Bolero 1.0**
Tracks and analyzes Web-site activity
- 69 ★★★/6.0 **Burn It 1.0**
Security package permanently deletes files
- 70 ★★★★★/8.1 **Extreme 3D 2.0**
Modeler, renderer, and animator
- 70 ★★★★★/7.6 **PowerBuilder 5.0**
Cross-platform database tool
- 72 ★★★/5.4 **MovieTools 1.5**
Simple QuickTime movie editor
- 72 ★★/4.2 **Ascend 4.0.1**
Electronic Franklin Day Planner
- 74 ★★★★★/7.4 **Scripter 2.0**
AppleScript programming gets a boost
- 74 ★★★★★/6.3 **DesignWorkshop 1.5**
Architectural 3-D modeler
- 76 ★★★/6.6 **ActionLine 1.1**
Create Java applets without programming
- 76 ★★★★★/7.5 **Audiotracer 1.0**
Software for creating audio CDs
- 78 ★★★★★/6.9 **Mathcad Plus 6**
The Word 6 of math programs
- 80 ★★/6.1 **3D Landscape 2.0**
Armchair garden design
- 82 ★★★★★/6.3 **Alley 19**
Aggressively retro bowling game



StarMax 3000/200

MOTOROLA

PowerPC

For a Mac lover, it's a wish come true.

Introducing StarMax. Go ahead, pinch yourself. Motorola has launched an entire line of Mac OS-based desktops and minitowers running on PowerPC™ technology. Everything from 180 MHz to 240 MHz, 1.2GB




to 2.5GB hard drives and starting at about \$1,595.* So now, you have a Mac OS alternative with an industry-low price. And with the assurance of the Motorola brand, you're getting the quality you'd expect from a global company. In fact, we're so sure of it, we gave all of our StarMax systems a five-year limited system warranty—the only one like it in the industry. And **PowerPC™** with our new board design, Motorola systems running on the PowerPC 603e™/200 MHz microprocessor outperformed other Mac OS compatibles running the same chip (even one running at 240 MHz).† Call us if you still think you're dreaming. You can consider it a wake-up call.

1-800-759-1107 ext. MWD
www.mot.com/computer/



MOTOROLA
Computer Group

©1996 Motorola, Inc. All rights reserved. Motorola and  are registered trademarks and StarMax is a trademark of Motorola, Inc. PowerPC, PowerPC 603e and the PowerPC logo are trademarks of and are used under license from International Business Machines Corporation. Mac OS is a registered trademark of Apple Computer, Inc. All other brand and product names are the trademarks or registered trademarks of their respective holders. *Contact your local reseller for current prices on specific configurations. †MacWorld, November, 1996.

What you never thought possible.™

Circle 207 on reader service card

AnthroCarts!®



AnthroCarts are *so* flexible. You have dozens of shapes and sizes to choose, plus over 50 accessories to configure your cart exactly the way *you* want.

And they have a Lifetime Warranty! Made of steel and high density particle board, these AnthroCarts are as tough as nails.



See them all in our catalog, then call us direct to order. We'll ship to you the very next business day!



Call for your
free catalog:

800-325-3841

6:00 AM to 6:00 PM PST, M-F



Anthro Corporation®
Technology Furniture®
10450 SW Manhasset Dr.
Tualatin, OR 97062
Fax: 800-325-0045
<http://www.anthro.com>

Since 1984. Prices from \$299. For a lower cost line for the home, ask for our Compacta catalog. GSA contract. Available for OEM applications. Anthro, AnthroCart and Technology Furniture are registered trademarks of Anthro.

Macworld

PRESIDENT AND CEO

ASSISTANT TO THE PRESIDENT

CHIEF OPERATING OFFICER

BUSINESS MANAGER

FINANCIAL ANALYST

DIRECTOR OF HUMAN RESOURCES

EMPLOYEE RELATIONS MANAGER

NETWORK MANAGER

MANAGER OF TECHNICAL SERVICES

IS TECHNICIAN

PROGRAMMER/ANALYST

INFORMATION SYSTEMS COORDINATOR

ACCOUNTING/OPERATIONS

ACCOUNTING/FACILITIES MANAGER

Colin Crawford

Sharon Sanderson

Stephen Daniels

Lisa Buckingham

Eos de Feminis

Shelly Ginenthal

Marisa Chow

Wally Clegg

Theodore Kim

Dave Johnson

Frederic Desbois

Ginger von Wening

Pat Murphy

Michelle Reyes

Macworld is a publication of International Data Group, the world's largest publisher of computer-related information and the leading global provider of information services on information technology. International Data Group publishes over 275 computer publications in over 75 countries. Sixty million people read one or more International Data Group publications each month. International Data Group's publications include: ARGENTINA: Buyer's Guide, Computerworld Argentina, PC World Argentina; AUSTRALIA: Australian Macworld, Australian PC World, Australian Reseller News, Computerworld, IT Casebook, Network World, Publish, Webmaster; AUSTRIA: Computerwelt Österreich, Networks Austria, PC Tip Austria; BANGLADESH: PC World Bangladesh; BELARUS: PC World Belarus; BELGIUM: Data News; BRAZIL: Anuário de Informática, Computerworld, Connections, Macworld, PC Player, PC World, Publish, Reseller News, Supergamepower; BULGARIA: Computerworld Bulgaria, Network World Bulgaria, PC & MacWorld Bulgaria; CANADA: CIO Canada, Client/Server World, ComputerWorld Canada, InfoWorld Canada, NetworkWorld Canada, WebWorld; CHILE: Computerworld Chile, PC World Chile; COLOMBIA: Computerworld Colombia, PC World Colombia; COSTA RICA: PC World Centro America; THE CZECH AND SLOVAK REPUBLICS: Computerworld Czechoslovakia, Macworld Czech Republic, PC World Czechoslovakia; DENMARK: Communications World Denmark, Computerworld Denmark, Macworld Denmark, PC World Denmark, Techworld Denmark; DOMINICAN REPUBLIC: PC World Republica Dominicana; ECUADOR: PC World Ecuador; EGYPT: Computerworld Middle East, PC World Middle East; EL SALVADOR: PC World Centro America; FINLAND: MikroPC, Tietoverkko, Tietovätkko; FRANCE: Distributique, Hebdo, Info PC, Le Monde Informatique, Macworld, Réseau & Telecoms, WebMaster France; GERMANY: Computer Partner, Computerwoche, Extra, Computerwoche FOCUS, Global Online, Macwelt, PC Welt; GREECE: Amiga Computing, GamePro Greece, Multimedia World; GUATEMALA: PC World Centro America; HONDURAS: PC World Centro America; HONG KONG: Computerworld Hong Kong, PC World Hong Kong, Publish in Asia; HUNGARY: ABCD CD-ROM, Computerworld Szamitastechnika, Internetto online Magazine, PC World Hungary, PC-X Magazin Hungary; ICELAND: Tolvuhimur PC World Island; INDIA: Information Communications World, Information Systems Computerworld, PC World India, Publish in Asia; INDONESIA: InfoKomputer PC World, Komputek Computerworld, Publish in Asia; IRELAND: ComputerScope, PC Live; ISRAEL: Macworld Israel, People & Computers/Computerworld, ITALY: Computerworld Italia, Macworld Italia, Networking Italia, PC World Italia; JAPAN: DTP World, Macworld Japan, Nikkei Personal Computing, OS/2 World Japan, SunWorld Japan, Windows NT World, Windows World Japan; KENYA: PC World East Africa; KOREA: Hi-Tech Information, Macworld Korea, PC World Korea; MACEDONIA: PC World Macedonia; MALAYSIA: Computerworld Malaysia, PC World Malaysia, Publish in Asia; MALTA: PC World Malta; MEXICO: Computerworld Mexico, PC World Mexico; MYANMAR: PC World Myanmar; NETHERLANDS: Computer Totaal, LAN Internetworking Magazine, LAN World Buyers Guide, Net, Macworld Netherlands, WebWeneld; NEW ZEALAND: Absolute Beginners Guide and Plain & Simple Series, Computer Buyer, Computer Industry Directory, Computerworld New Zealand, MTB, Network World, PC World New Zealand; NICARAGUA: PC World Centro America; NORWAY: Computerworld Norge, CW Rapport, Datamagasin, Financial Rapport, Kursguide Norge, Macworld Norge, Multimediaworld Norway, PC World Express Norge, PC World Nettverk, PC World Norge, PC World ProduktGuide Norge; PAKISTAN: Computerworld Pakistan; PANAMA: PC World Panama; PEOPLES REPUBLIC OF CHINA: China Computer Users, China Computerworld, China InfoWorld, China Telecom World Weekly, Computer & Communication, Electronic Design China, Electronics Today, Electronics Weekly, Game Software, PC World China, Popular Computer Week, Software Weekly, Software World, Telecom World, and online Webzine China Computerworld Daily; PERU: Computerworld Peru, PC World Profesional Peru, PC World SoHo Peru; PHILIPPINES: Click!, Computerworld Philippines, PC World Philippines, Publish in Asia; POLAND: Computerworld Poland, Computerworld Special Report Poland, Cyber, Macworld Poland, Network Poland, PC World Komputer, PORTUGAL: Cerebro/PC World, Computerworld/Correio Informático, Dealer World Portugal, Mac'In/PC'in Portugal, Multimedia World, PUERTO RICO: PC World Puerto Rico; ROMANIA: Computerworld Romania, PC World Romania, Telecom Romania; RUSSIA: Computerworld Russia, Mir PK, Publish, Seti; SINGAPORE: Computerworld Singapore, PC World Singapore, Publish in Asia; SLOVENIA: Monitor; SOUTH AFRICA: Computing SA, Network World SA, Software World SA; SPAIN: Comunicaciones World España, Computerworld España, Dealer World España, Macworld España, PC World España; Sri Lanka: Infolink PC World; SWEDEN: CAP&Design, Computer Sweden, Corporate Computing Sweden, Internetworld Sweden, itbranschen, Macworld Sweden, MaxiData Sweden, MikroDatorn, Nätverk & Kommunikation, PC World Sweden, PCaktiv, Windows World Sweden; SWITZERLAND: Computerworld Schweiz, Macworld Schweiz, PCTip; TAIWAN: Computerworld Taiwan, Macworld Taiwan, NEW VISION/Publish, PC World Taiwan, Windows World Taiwan; THAILAND: Publish in Asia, Thai Computerworld; TURKEY: Computerworld Türkiye, Macworld Türkiye, Network World Türkiye, PC World Türkiye; UKRAINE: Computerworld Kiev, Multimedia World Ukraine, PC World Ukraine; UNITED KINGDOM: Acom User UK, Amiga Action UK, Amiga Computing UK, Apple Talk UK, Computing, Macworld, Parents and Computers UK, PC Advisor, PC Home, PSX Pro, The WEB; UNITED STATES: Cable in the Classroom, CIO Magazine, Computerworld, DOS World, Federal Computer Week, GamePro Magazine, InfoWorld, I-Way, Macworld, Network World, PC Games, PC World, Publish, Video Event, THE WEB Magazine, and WebMaster; online Webzines JavaWorld, NetscapeWorld, and SunWorld Online; URUGUAY: InfoWorld Uruguay; VENEZUELA: Computerworld Venezuela, PC World Venezuela; and VIETNAM: PC World Vietnam.

Every file on the Internet has an outer "shell." We're the nutcracker.

There are bushels of files on the 'net. But nearly all have a "shell" that must be removed before you can use them. StuffIt Deluxe 4.0 is the Mac standard for both Stuffing and unStuffing files, which also saves time and money. StuffIt handles most formats, even those for Windows and Unix, including sit, zip, hqx, and uu. So enjoy the riches the online world has to offer, because the Internet isn't a tough nut to crack if you have the right tool.

Aladdin Systems

(408) 761-6200 www.aladdinsys.com

Circle 21 on reader service card

Macworld

EDITOR IN CHIEF

Adrian Mello

EDITORIAL

EXECUTIVE EDITORS Galen Gruman, Carol Person
DIRECTOR OF EDITORIAL OPERATIONS Jane Lagas
SENIOR EDITOR/FEATURES Howard Baldwin
SENIOR ASSOCIATE EDITOR/NEWS Stephen Beale
SENIOR ASSOCIATE EDITOR/REVIEWS Anita Epler
SENIOR ASSOCIATE EDITORS Cathy E. Abes, Elizabeth Dougherty, Tova Fliegel
ASSOCIATE EDITORS Linda Comer, Suzanne Courteau, Cameron Crotty, Katherine L. Ulrich
ASSISTANT EDITOR Keith A. Mitchell
OFFICE MANAGER Deborah Weinberger
ASSISTANT TO THE EDITOR IN CHIEF Patricia Carberry-Harris
CONTRIBUTING EDITORS Mel Beckman, Robert C. Eckhardt, Erfert Fenton, Jim Heid, Steven Levy, Cary Lu, Deke McClelland, Tom Negrino, David Pogue, Lon Poole, Steve Roth, Joseph Schorr, Charles Seiter, Franklin N. Tessler
INTERNATIONAL EDITORS Matthew J.C. Powell, Australia; Vinicius Souza, Brazil; Stig Boesgaard, Denmark; Jean-Philippe Dubrun, France; Andreas Borchert, Germany; Enrico Lotti, Italy; Shohei Nishida, Japan; Oscar Kneppers, Netherlands; Tom Helge Berglie, Norway; Alvaro Ibariez, Spain; Lennart Hakansson, Sweden; Cuno Schneeberger, Switzerland; Bahattin Apak, Turkey; Simon Jary, United Kingdom

LAB

LAB DIRECTOR Lauren L. Black
SENIOR TECHNICAL ANALYSTS Matt Clark, Mark Hurlow, Jeff Sacilotto
TECHNICAL ANALYST Chris Uiterwijk
INVENTORY CONTROLLER Paul Brown

COPY EDIT AND EDITORIAL PRODUCTION

MANAGING EDITOR Ruth Henrich
SENIOR COPY EDITOR Paul-Michael King
SENIOR PRODUCTION EDITOR Lisa Brazical
COPY EDITORS Gail E. Nelson, Elissa Rabellino
ASSISTANT PRODUCTION EDITOR Jackie Goodman

ART AND DESIGN

DESIGN DIRECTOR Leslie Barton
ART DIRECTOR Joanne Hoffman
DESIGNER Tim Johnson
ASSOCIATE ART DIRECTOR Sylvia Chevrier
ASSOCIATE DESIGNER Martha Katt
SENIOR DESIGN ASSOCIATE Belinda Chlouber
DESIGN ASSOCIATE Aimée Lennig

ONLINE

MANAGER.ONLINE Paul Devine
ONLINE SALES MANAGER Jeff Julian
ONLINE ACCOUNT MANAGER Ed Ramirez
DESIGN DIRECTOR.ONLINE Arne Hurty
WEB ADMINISTRATOR Chip Carman
ONLINE PRODUCER/EDITOR Karen Liberatore
ONLINE ADMINISTRATOR Steve Costa
ONLINE CONTENT PRODUCER Matt McAlister
ASSISTANT CONTENT ENGINEERS Roxanne Gentile, Jessica Graves

"The #1 Mac Desk!"

FREE CATALOG

As low as \$299

1.800.688.2446
 AGIO DESIGNS™ FAX: 503-242-1362 support@agio-designs.com

Corel DRAW™ Suite 6

INCLUDES
COREL
WordPerfect

COMPETITIVE
UPGRADE
OFFER



The First Graphics and
Word-Processing Suite
for **Power Macintosh®**

CorelDRAW™ 6 Suite for Power Macintosh®—the first complete graphics and word-processing package for Macintosh® users. The marriage of world-famous Corel® WordPerfect® with award-winning CorelDRAW 6—bundled together for the very first time—is a powerful union. This incredibly comprehensive suite combines innovative illustration, image editing, photo editing and 3D rendering with the efficiency of intuitive document creation. CorelDRAW 6 Suite for Power Macintosh—marking the dawn of a new era in graphics software for Macintosh users.

INCLUDES:

CorelDRAW™ 6 for Power Macintosh®

Illustration and Page Layout

Corel® WordPerfect® 3.5

Powerful Word Processing

CorelDREAM 3D 6

3D Modeling and Rendering

Corel TEXTURE™ 6

Realistic Texture Creation

Corel ARTISAN™ 6

Photo Editing and Bitmap Creation

Netscape Navigator™

INCREDIBLE VALUE!

9 powerful applications and utilities
Over 25,000 clipart images
Over 1,000 high-resolution photos
Over 1,000 Type 1 fonts
Over 700 TrueType® fonts
Over 750 3D models



1-800-248-0800

\$148.98*

Competitive upgrade
CD-ROM version

\$398.98*

Full CD-ROM version

*US\$ plus applicable taxes and shipping.

KUR-0306-JUS



Corel, Official World
Title Sponsor of the
COREL WTA TOUR



<http://www.corel.com>
Call now for faxed literature!
1-813-728-0826 ext. 3080
Document # 1008

Corel, WordPerfect, CorelDRAW, Corel TEXTURE and Corel ARTISAN are either trademarks or registered trademarks of Corel Corporation or Corel Corporation Limited. Macintosh and Power Macintosh are registered trademarks of Apple Computer, Inc. All other product and company names are either trademarks or registered trademarks of their respective corporations.

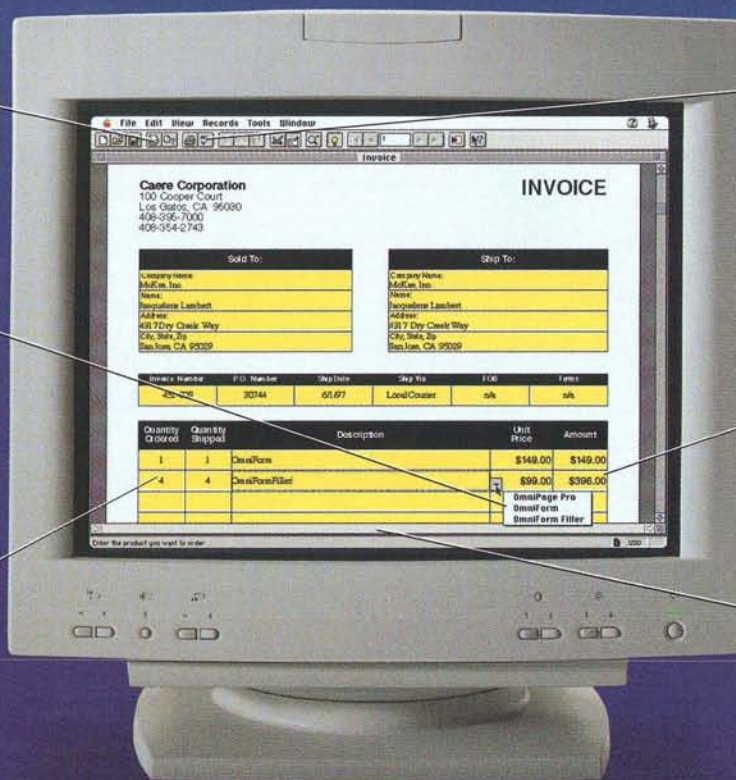
Circle 78 on reader service card

SIX KEY REASONS TO MAKE YOUR PAPER FORMS ELECTRONIC.

1 INSTANT FORMS:
Scan in existing forms for easy conversion, pick pre-built form components from a scrap album or create custom forms using powerful design tools.

2 EASY TO FILL OUT: Filling out electronic forms is easy. Just tab and type. Enter data quickly from a list of drop down choices.

3 DATABASE INTEGRATION: Automatically builds a database for each form. Search and sort records. Import/Export data via tab delimited file formats.



4 SPELL CHECKING:
Electronic forms give you perfect results by spell checking your forms automatically. Plus you can print, fax or e-mail your forms to others.

5 BUILT-IN CALCULATIONS:
Electronic forms can create calculations automatically or just drag and drop using over 35 Excel-like calculations.

6 CROSS PLATFORM SUPPORT:
OmniForm file formats are platform independent, so Macintosh and Windows users can share forms.

OmniForm[®] GIVES YOU EXACT ELECTRONIC DUPLICATES OF YOUR PAPER FORMS IN SECONDS.

Don't put up with paper forms any longer. Using Caere's proven, award-winning OmniPage[®] OCR technology, OmniForm[®] lets you scan and convert existing paper forms into electronic forms in seconds. The result? Total electronic duplicates you can see on your computer screen, edit, fill out and even spell check. To enter or change data, you just tab and type. It's that easy!

With OmniForm, you can print and fax your forms, or e-mail them throughout your company. And it gives you a simple, but

powerful tool set to edit your forms, change fonts, add graphics or design completely new forms from scratch.

OmniForm also performs automatic calculations, validates entries and creates databases. So the information you get from your forms works a lot harder for you, not the other way around.

Want to add users? OmniForm

Filler lets even more people use your electronic forms for a small additional cost.

Why deal with paper when you can save so much time and hassle using OmniForm? Call or visit a reseller for your copy today.



www.caere.com



Now only **\$149***

800-411-8656

extension 195



Available for Macintosh, Windows 95, Windows 3.1, and Windows NT

*Suggested price US dollars—subject to change without notice. Offer valid in US and Canada only. Caere, the Caere logo, OmniPage and OmniForm are registered trademarks of Caere Corporation. All other names are the property of their respective holders. © 1997.

Circle 69 on reader service card



(freezing now optional)

For info on TechTool Pro software, call **800-829-6227**.
For info by fax, call 707-838-4231 and order #2009.
Or, check out our site at <http://micromat.com/mmcs/>.

TechTool Pro
BY MICROMAT COMPUTER SYSTEMS

Circle 77 on reader service card

Macworld

DISPLAY ADVERTISING SALES

ASSOCIATE PUBLISHER	Matt Sweeney (415/978-3271)
NATIONAL SALES DIRECTOR	Steve Plevin (415/978-3138)
SALES DEPARTMENT ADMINISTRATOR	Eva Bosch (415/974-7310)
REGIONAL ACCOUNTS MANAGER	Liz Pabón (415/978-3257)
NATIONAL ACCOUNTS MANAGER	Karl Elken (415/978-3155)
ACCOUNT EXECUTIVE	Christine Wong (415/978-3192)
SALES ASSOCIATE	Jessica Ross (415/975-2619)
NATIONAL ACCOUNTS MANAGER	Sara Culley (310/545-0646)
SALES ASSOCIATE	Margaret Level Green (415/267-4577)
NATIONAL ACCOUNTS MANAGER	Cynthia Ramsey (201/243-1197)
NATIONAL ACCOUNTS MANAGER	Paul Bonarrigo (508/370-0832)
ACCOUNT EXECUTIVE	Lisa Weisberg (415/978-3164)
ADMINISTRATIVE ASSISTANT	Glenn Munlawin (415/974-7350)
NATIONAL ACCOUNTS MANAGER	Lisa Ladle-Wallace (800/779-5622)
ACCOUNT EXECUTIVE	Kathy Poppenhagen (847/398-8141)

CLASSIFIED ADVERTISING SALES

MACWORLD SHOPPER AND DIRECTORY	Niki Stranz (415/978-3105), Carol Johnstone (415/978-3152), Shannon Smith (415/974-7414)
ADMINISTRATIVE ASSISTANT	Toni May (415/975-2638)

RESEARCH

RESEARCH DIRECTOR	Linda Lawrence
SENIOR RESEARCH ANALYST	Phillip Hibbert
INTERNET RESEARCH ANALYST	Scott Petersen

WORLDWIDE MARKETING

MARKETING DIRECTOR	Cynthia Koral
MARKETING MANAGER	Oliver Chin
MARCOM MANAGER	Rhona Hamilton
SENIOR TRADE SHOW/EVENTS MANAGER	Anna Noetzel
TRADE SHOW/EVENTS COORDINATOR	Marjorie Maggenti
MARKETING SPECIALIST	Jamila Johnson

CIRCULATION

VICE PRESIDENT/DIRECTOR OF CIRCULATION	Angelina Beitia
SINGLE-COPY SALES DIRECTOR	George Clark
SENIOR CIRCULATION MANAGER	Lori Hitchcock
CIRCULATION MANAGER	Elizabeth Jensen
NEWSSTAND SALES MANAGER	Martin Garchar
DIRECT-MARKETING MANAGER	Kelvin Gee
NEWSSTAND COORDINATOR	Dalia Schwartz
SUBSCRIPTION COORDINATOR	Tom Porcella
PROMOTIONS COORDINATOR	Peter Ho
SUBSCRIPTION INQUIRIES	800/288-6848

PRODUCTION

VICE PRESIDENT/DIRECTOR OF MANUFACTURING	Anne Foley
PRODUCTION MANAGER	Cynthia Neustadt
ASSISTANT PRODUCTION MANAGER	David W. McAferty
DTP COORDINATOR	Clayton Haberman
BILLING INFORMATION MANAGER	So Fong Yip
BILLING ASSISTANT	Lily Cheung

Portable Solutions

Charger
1400



Coming Soon!

A full line of
3400 Series
PowerBook
Accessories

VST Technologies is proud to announce our newest line of accessories for the PowerBook® 1400. Once again VST has all the mobile solutions to deliver desktop performance on a portable platform.

1.2 GB
Expansion
Bay Hard
Drives



230 MB
Magneto-
Optical
Drives



For People
Who Are
Going Places

VST
TECHNOLOGIES
Incorporated

125 Nagog Park • Acton, Massachusetts 01720
(508) 263-9700 • Fax (508) 263-9876 • <http://www.vsttech.com>

Contact VST for the full
line of products for the
PowerBook 1400 Series

Circle 73 on reader service card

Faster-acting relief.

Now, PaperPort vx comes with a SCSI adapter so it's even faster at relieving organizational headaches.



PAPERPORT vx AND SCSI ADAPTER: A NATURAL CONNECTION

Connect your PaperPort vx to your SCSI port with the included SCSI adapter for Macintosh. Dealing with paper has never been faster or easier.

PAPERPORT vx MEANS YOU'LL NEVER AGAIN HAVE TO WASTE TIME RETYPING

It can scan thousands of words in minutes—from virtually any type of document. Reports. Memos. Letters. Then PaperPort vx's integrated Xerox TextBridge™ OCR software converts these words to digital format so they can be edited or copied.

NEW. PAPERPORT vx CONQUERS THE COMMON FORM

Forms. If they're the bane of your existence, buy Visioneer's FormTyper™ software. Like magic, it brings up forms on your computer and finds all the fields you need to fill out. All you have to do is tab from field to field, and type. (FormTyper is sold separately and is available directly from Visioneer at <http://www.visioneer.com>).



PAPERPORT vx FITS EASILY INTO YOUR MAC SYSTEM

It's sleek and small. It rests right between your keyboard and monitor.



PAPERPORT vx PUTS POWER BEHIND YOUR E-MAIL

Find a good tidbit about a competitor in the Sunday paper? Scan it into PaperPort and send it off to your colleagues using e-mail, so they can use the data to close the big deal on Monday morning.

PAPERPORT vx GETS RID OF CLUTTER

Then there are all of those newspaper articles, financial statements, meeting notes, and Dear Binky columns you just can't bear to part with. You can use PaperPort to scan paper as long as 30 inches, and photos in up to 256 shades of gray. So you can save them forever, and get rid of the originals—with no remorse.



PAPERPORT vx KEEPS TRACK OF YOUR CONTACTS

Tired of forgetting people's names and numbers? Just scan business cards into PaperPort, and create a file of your business contacts—all on your Macintosh computer.

PAPERPORT vx IN THREE EASY STEPS

1. Feed in a document. In as quick as 6 seconds, it's scanned.
2. Drag and drop it onto most of your favorite applications.
3. Edit, copy, print, e-mail, fax, file, or organize the material as necessary.



PAPERPORT vx MAKES SMART ARCHIVES

Imagine never having to rummage to find an important slip of paper: PaperPort lets you create archives of critical documents—receipts, invoices, your car registration, even those love notes from the 7th grade.

YES, FEED ME MORE...

1-800-787-7007, ext. 612
<http://www.visioneer.com>
Or contact an authorized reseller.

PAPERPORT.vx

ANNOUNCING Windows® NT 200 MHz Pentium®



WITH
OrangePC®

Technical Leadership

OrangePC is the only Windows® compatibility card in the world which brings the fastest 200 MHz Intel® Pentium and the high-end Windows NT operating system to the Mac.

An Orange PC for Every User Need

The OrangePC offers a complete series of expansion cards for NuBus, PCI and 7" PCI (Performa) slots. Choose your processor ranging from a low cost Intel 486 to the 200 MHz Pentium powerhouse. Select your OS from DOS, Windows 3.1, 95 or our exclusive Windows NT and OrangePC can run any of your PC programs on your Mac simultaneously with your Mac applications.

And the OrangePC is affordable with prices starting at \$499.

Choose Your OrangePC

OrangePC 340: NuBus, 486/5x86, 256 K cache, to 64 MB RAM.

OrangePC 425: 12" PCI, 486/5x86, to 32 MB RAM, 1 MB video DRAM, From \$499.

OrangePC 440: 12" PCI, 486/5x86, 256 K cache, to 64 MB RAM.

OrangePC 525: 7" PCI, up to 200 MHz Pentium, to 32 MB RAM, 1 or 2 MB video DRAM. From \$799.

OrangePC 540: 12" PCI, up to 200 MHz Pentium, 256 K cache, to 256 MB RAM, 2 MB video DRAM.

Every OrangePC comes with these ports: 2 Serial, parallel (for dongles), game, stereo Sound Blaster® In/Out.



"17 Years of Innovation and Excellence"
1400 N. Lakeview Ave., Anaheim, CA 92807
(714)779-2772 www.orangemicro.com

Circle 33 on reader service card

Macworld

HOW TO CONTACT MACWORLD

Subscription Questions

Phone Mainland USA 800/288-6848
All other locations 303/604-1465
Fax 303/604-7644
U.S. Mail Subscription Services
P.O. Box 54529, Boulder, CO 80328-4529

America Online Keyword Macworld

WWW <http://www.macworld.com/>
community/sub.services.html

E-mail subhelp.macworld@neodata.com

Macworld Club Questions

Phone U.S. and Canada 800/895-9545
WWW <http://www.club.macworld.com>
E-mail club_macworld@macworld.com

REPRINTS AND PERMISSIONS Address requests for reprint orders and for permissions to copy editorial for other purposes to Reprints and Permissions, Editorial Department.

Permission will be granted by the copyright owner for those registered with the Copyright Clearance Center (CCC) to photocopy any article herein—for personal or internal reference use only—for the flat fee of \$1.50 per copy of the article or any part thereof. Specify ISSN 0741-8647 and send payment directly to the CCC at 27 Congress St., Salem, MA 01970.

Back Issues of Macworld

Back issues are \$7 per issue for U.S. delivery (\$12 overseas); prepayment in U.S. funds is required. Make checks or money orders payable to Macworld Magazine and mail along with a written request to Macworld Back Issues, c/o Snyder Newell, P.O. Box 7046, San Francisco, CA 94120-9727. Readers can obtain newsstand premiums by mailing a check for \$2.95 (shipping and handling) to Macworld Communications, Newsstand Promotion, 501 Second St., San Francisco, CA 94107. Important: Please state CD title and issue, and include shipping name and address.

Macworld in Microfilm

Macworld is available on microfilm and microfiche from UMI, 300 N. Zeeb Rd., Ann Arbor, MI 48106-1346; 313/761-4700.

Macworld Editorial

Our offices are located at 501 Second St., San Francisco, CA 94107; 415/243-0505, fax 415/442-0766. E-mail: macworld@macworld.com.

Readers can contact editors directly via the Macworld forum on America Online (keyword Macworld) or Macworld Online's Web site (<http://www.macworld.com>).

LETTERS TO THE EDITOR Direct all comments, questions, and suggestions regarding any aspect of the magazine to letters@macworld.com. All mail is read by our editor, but due to the high volume of mail received, we can't respond personally to each letter. We reserve the right to edit all submissions. All letters published in Macworld or Macworld Online become the property of Macworld.

QUICK TIPS Send your questions or tips on how to use Mac computers, peripherals, or software to the attention of Quick Tips, Lon Poole, or e-mail them to quicktips@macworld.com. Please include your name, address, and telephone number.

BUGS AND TURKEYS Send descriptions of turkeys (flaws in conception or design) and bugs (defects or flaws in execution) with your telephone number, mailing address, and T-shirt size to the magazine via letters@macworld.com. Due to the high volume of reported bugs and turkeys, we can't personally solve or advise on reported conflicts.

WRITING FOR MACWORLD If you're interested in writing for us, send a self-addressed, stamped envelope with a request for our writer's guidelines. Do not send unsolicited manuscripts.

FOUNDER

David Bunnell

FOUNDING EDITOR

Andrew Fluegelman 1943-1985

Macworld is a publication of Macworld Communications, Inc. Macworld is an independent journal not affiliated with Apple Computer, Inc. Macworld, Macworld Interactive, Macworld Shopper, MW, MW Lab, MW Shopper, The Desktop Critic, Expert Graphics, Quick Tips, Star Ratings, Buyers' Tools, Streetwise Shopper, and Conspicuous Consumer are registered trademarks of International Data Group, Inc. Power PC World and Secrets are trademarks of IDG, Inc. APPLE, the APPLE LOGO, MAC, and MACINTOSH are registered trademarks, and MACLETTER and POWERBOOK are trademarks of Apple Computer, Inc. Printed in the United States of America. Copyright © 1997 Macworld Communications, Inc. All rights reserved. Macworld is a member of IDG Communications, the world's largest publisher of computer-related information.



Organic 3D modeling
is now child's play
with ...



As a designer, you need to visualize complex forms and to imagine shapes that do not yet exist. You frequently race against insane deadlines, while your customers grow impatient. That's when you need the modeling power of **form-Z**.

form-Z lets you create a vast variety of forms with unprecedented ease. It offers an extensive array of unique 2D and 3D form sculpting capabilities.

Grow a model from simple lines to complex surfaces or to true solids with a few quick clicks. Shape curved splines or NURBS surfaces as you slip effortlessly between 2D and 3D views. Resize your shape, stretch it, extrude it, lath it, sweep it, project it, unfold it, deform it, apply advanced vertex and edge rounding to it. What's more, **form-Z**'s Boolean operations work even better than those found on pricey workstation level modeling packages.

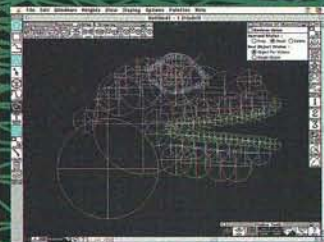
Add as many layers as you need, work with floating point precision using simultaneous graphic and numeric input. If you're unhappy with your new design, unlimited undos are always at your fingertips.

RenderZone

When you're done modeling, you can use **RenderZone**'s state of the art shader technology to produce your photo realistic images at impressive speeds. Or you can transfer your models smoothly into your favorite animation program, using **form-Z**'s extensive import/export formats. Flexibility of this caliber has made **form-Z** the most effective modeling complement to many popular animation programs.



Create smoothly blended forms with **metaformz™**, which are **metaballs** applied beyond spheres to a vast variety of 3D forms. Produce complex forms by changing the resolution of bulky models, through **smooth meshing**. Sketch the outlines of a shape and let **form-Z** **sweep them along any number of paths**. Refine your surfaces using **image based displacements**. All this and more while you also enjoy some major speed and interface improvements, including **customizable key commands** and **undos** that can be even **saved** with the project.



To see for yourself,
download a demo for
MacOS or Windows from
our web site at
www.formz.com.



autodesys INC

Phone: (614) 488-8838

Fax: (614) 488-0848

Circle 49 on reader service card



Background images: Outlet Values by Real Time Visualization, Lancashire, UK. All other images by autodesys, Inc.

DayStar

**Industrial Strength
Four Processor
Systems
For Imaging,
3D, and
Video Experts**



John Lund
TeamDigital



**"The Ultimate
Mac!"
NewMedia**

PowerPC[®]_{x4}



Mac OS
Multiprocessing



DAYSTAR[®]
DIGITAL

www.daystar.com
770.967.2077

GenesisMP

DayStar Digital, Inc.

5556 Atlanta Hwy., Flowery Branch, GA 30542, 770-967-2077, Fax: 770-967-3018, Email: info@daystar.com

Circle 7 on reader service card

APRIL 1997

Letters

Waiting for My Money

I PURCHASED AN IOMEGA ZIP DRIVE AND sent in for the \$50 rebate in October 1996. After no results two months later, I started checking. I am caught in a labyrinth of automated voice, e-mail, and fax-back messages. Even my retailer is giving me the shrugged-shoulder thing. It's not the 50 bucks, but there is something unsettling about faceless non-service. Is there a number I can call that doesn't cost \$14.95 only to be told I don't have a technical problem?

MARTIN OLSON

Golden, British Columbia, Canada

According to an Iomega spokesman, the Zip rebate was far more popular than the company anticipated. The company has now cleared through the backlog of pending rebates; users who have waited more than eight weeks for their rebate should call 800/697-8833.—Ed.

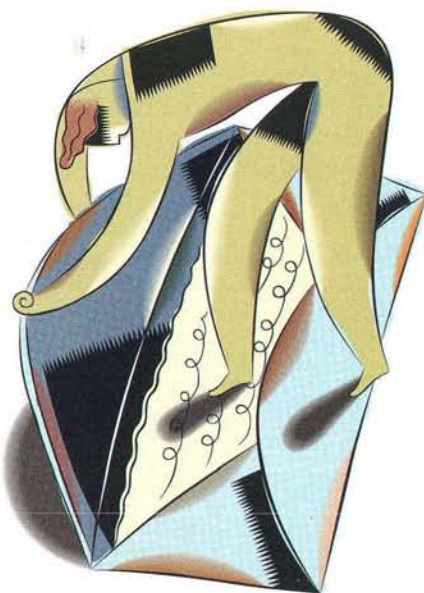
Printing Secrets

JOSEPH SCHORR'S SECRETS ARTICLE, "Good-bye, Chooser" (January 1997), states that if you drag several files at the same time to a printer icon, you need only confirm your request once in the Print dialog box, and all your jobs will print.

Would that it were so! I just finished printing 24 two-page files that had to be printed via manual feed in order to take advantage of the straight paper path on my printer. I dragged all the files at once, and proceeded to select manual feed and click on the Print button 24 times, as the system in turn opened each file, opened the Print dialog box, and then spooled the pages. Am I doing something wrong?

BLAIR SANDLER

San Francisco, California



Only if you're using Word 6. Seriously, in Word 5 you need only confirm your request once in the Print dialog box when you drag several files at the same time to the printer icon. But as you found out, it doesn't work with every application. Word 6 insists you confirm each and every print job (another improvement, no doubt).—Ed.

Junk-Mail Jihad

I AGREE WITH MATT HENDERSON THAT junk e-mail should be illegal (*Letters*, January 1997). Like many others, I've started using a bogus return address on my Usenet posts to avoid junk mailers who harvest e-mail addresses from Usenet, which, unfortunately, makes it inconvenient for anyone who has a legitimate need to respond to a Usenet post or who asks a question via Usenet. Here are some other ways to stop junk e-mail.

- Check the return address and complain to the system administrator (root and/or postmaster at the junk mailer's

domain). Spammers often use a bogus return address. In that case, display full headers in your mail program and look for an X-Sender header, which usually has the real e-mail address. You should also see one or more Received From: headers, which also tell who sent the e-mail.

- If you want to find out who provides the mailer's Internet access or domain name, go to <http://rs.internic.net> and search for the domain name.

- Get a utility like MacTCP Watcher 1.1.2 (freeware from Peter N. Lewis; available from Macworld Online [<http://www.macworld.com>] or on America Online [keyword Macworld]) and use the trace-route function to find out who provides the mailer's Internet connection and complain to the appropriate people at that Internet provider.

- Another Web site I find very useful is <http://kryten.eng.monash.edu.au/gspam.html>, which provides a form that lets you use many tools, including domain-name lookups and a traceroute function, to identify the offending Net abuser.

It's time for us to take the Internet back from the spam advertisers.

MIKE COHEN

Casper, Wyoming

Love Me, Love My PowerBook

I AM PUZZLED BY THE APPARENT INCONSISTENCY of a favorable description and unfavorable rating given to the PowerBook 1400 (*Reviews*, January 1997). The gist of the review is that the screen is larger in size and better in quality than in previous models, the keyboard arrangement and feel have been improved, and the innards are better organized. The thrust of your unfavorable rating is that the 1400

continues

CORRECTIONS

- *Digital Chisel://HTML can convert sounds and video to HTML* (Reviews, January 1997).
- *Users can align individual points in FreeHand Graphics Studio 7* (Reviews, February 1997).

is not any faster than the previous model.

I wonder if it wouldn't be more fair to review equipment based on what it is, rather than how *Macworld* would like it to be. I have a sneaking suspicion that inscrutable Apple intentionally committed this sin to keep the price down for people who don't wish to pay for speed they won't use. Perhaps we have lost sight of the PowerBook's original purpose.

Television ads suggest PowerBooks are used only in airports, and that stewards are mightily impressed by, and socially inclined toward, the suits using them. But the makeup of the Apple-user population has changed remarkably because Macs have become less expensive and easier to use, and perhaps Apple and *Macworld* haven't yet adapted to this new base. There is a vast army of retired people marching over the hill; they want to use e-mail and the Internet, and for this group, ease of use, stability, and cost are much more important than speed.

BOB BRADFIELD
Orinda, California

Using a PowerBook to pick up women—never thought of that.—Ed.

Doomed!

I BOUGHT PATHWAYS INTO DARKNESS from Bungie Software more than one year ago. Recently, I acquired Doom II. Both games are really nice. My problem is that I want to finish both games, but I am simply not able to do it. I acquired the official Pathways into Darkness hint book, but that was not enough. Please, if somebody knows a code, a keyword, or a specific manner to bypass the mortality of the player, let me know.

CARLOS CONDE-REYES
Rio Piedras, Puerto Rico

Isn't bypassing the mortality of the player the latent concern among baby boomers? In any case, point your browser toward David Coufal's Path-

ways into Darkness Web page (<http://methane.mit.edu:8001/user/coufal/pid/index.html>): *it's got FAQs, cheat files, and game maps.*

I didn't find any one supreme Doom II page, but for cheat codes try IDDQD for a little omnipotent action, or IDBEHOLD+V—as in in-Vulnerability. Use DOOM II cheat on a service like Yahoo to search out sites with the full list of Doom II, ah, enhancements.—Ed.

Evangelical Apple

FOR YEARS, THE MAC COMMUNITY HAS routinely bashed Apple for its failure to get the message out. Isn't it only fair to recognize the company when it does something right?

The free product literature, videotapes, and decals Apple makes available (see the Why Macintosh? Web site at <http://www2.apple.com/whymac>) are terrific! I have used these materials to convince three coworkers to purchase Macintoshes. Thanks and congratulations, Apple, for a good idea done well.

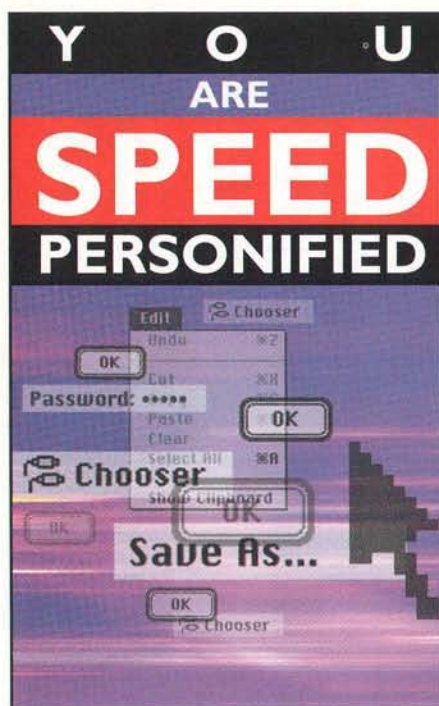
STEPHEN C. WATTS
Bloomington, Illinois

Illustration Challenge

YOUR REVIEW OF THE BIG FOUR ILLUSTRATION programs was very thorough, and I applaud the emphasis on usability, not features, as grounds for testing ("The Illustration Challenge," January 1997). While your evaluations were dead-on, they took the perspective of the power user—someone with lots of experience using illustration programs. As a consultant in a multimedia center using both Macromedia FreeHand and Adobe Illustrator, I must say that no review of the programs is complete without mention of the supporting documentation.

Macromedia has opted for the online CD-ROM format (at least when you purchase FreeHand with Graphics Studio), while Adobe wisely chooses the more expensive paper copy. The FreeHand online manual and tutorial are unwieldy and slow, and prove extremely difficult to print (the inevitable course of action). The online tutorial is difficult to run with FreeHand open and yet doesn't make sense without it.

As my old usability engineering professor used to say, "You get the feeling continues



More megahertz is a wonderful thing. Unfortunately, even your lightning-fast Power Mac™ system still makes you do all of the same tedious stuff that slows you down. You know ... menus ... dialog boxes ... passwords ... Chooser. You get the point. QuickKeys® 3.5 supercharges your *personal* clock speed with its easy, on-the-fly automation power. It screams through your routine dialogs, page setups, passwords, and everything else ... automatically and on demand across your entire Mac™ OS environment. Accelerate your personal productivity with QuickKeys!



Order Today!

CE Software, Inc.
800-523-7638
Program QK 2149



**Best
Personal
Utility**

©1997 CE Software, Inc. CE Software, the CE Software logo are trademarks and QuickKeys is a registered trademark of CE Software, Inc. All other brand or product names are trademarks or registered trademarks of their respective holders.

<http://www.cesoft.com>

Circle 170 on reader service card

SELECTING

THE

BEST

GRAPHICS

PROGRAM

JUST

BECAME

A

NO-BRAINER



A Mixture of tools so powerful...

we should put asbestos gloves in every box!

CANVAS 5
Complete Illustration, Photo Editing and Page Design

If you already own a graphics application, trade up to Canvas 5 for just \$149.95. See your favorite reseller, or visit us at www.deneba.com for complete product information and secure online ordering. For a Canvas 5 dealer near you, or to order by phone, call 1-800-6 CANVAS or 305-596-5644.



Stop toying with feeble graphics programs that sap your creative energy. Canvas 5 puts everything you need to realize your artistic vision into one integrated program that's ready to rock the second inspiration hits. • Say goodbye to concentration-zapping "launch and quit" cycles. With Canvas 5, absolutely stunning illustration, photo editing, and page design tools are always right at your fingertips. • In addition, Canvas 5 works with any file (from Photoshop™ to CorelDraw™ to GIF, TIFF, and JPEG) and any Photoshop-compatible plug-in. You also get over 20,000 clip art images and 2,000 premium URW™ fonts. • Simple, flexible, and relentlessly versatile, Canvas 5 is an industrial-strength graphics tool. So what are you waiting for? Put the awesome power of Canvas 5 under your creative control today.

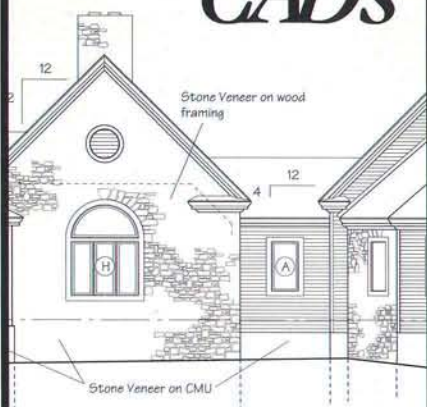
©1997 Deneba Software. Canvas is a trademark of Deneba Software. All other company names, product names, trademarks and registered trademarks are the property of their respective holders. Limited time offer subject to change without notice.

800.6.CANVAS



Circle 57 on reader service card

DRAW circles around those other CADs



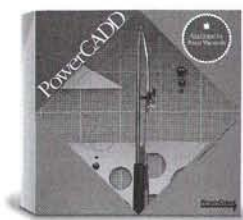
"Now I can design my way."
—Bob Payne, Architect



You want drawings that look like the ones you've always done by hand—or better. Exquisitely detailed. Perfect arrows. Crisp lines. Or maybe a squiggly sketch. You don't want it to look like it was done on a computer.

PowerCADD lets you draw like that, and it doesn't get in your way. Draw floor plans. Machinery. Charts. Sketch a bush. Doodle a cloud. A flower.

You can draw anything with PowerCADD. And it's easy.



PowerCADD

Turn your genius loose. Put some fun back into your life. Order PowerCADD.

Call 910-299-4843 In Canada: 204-453-8111

ENGINEERED SOFTWARE

<http://www.engsw.com> Fax: 910-852-2067

Circle 12 on reader service card

LETTERS

they spent more time on the hypertextual links than on writing a good manual." It is not an exaggeration to say that the Illustrator manual is more useful when you're working in FreeHand (thanks to similar interfaces) than the FreeHand online manual is. FreeHand's dismal manual will keep third-party how-to books in business for a long time.

KOBY SNYDER
Charlottesville, Virginia

FreeHand 5.5 did indeed opt out of providing printed documentation, a deficiency that we called out in our review (February 1996). Thankfully, FreeHand 7 has remedied this omission.—Ed.

I APPRECIATED DEKE MCCLELLAND'S well-written article "The Illustration Challenge." However, in the second paragraph under "Zooming and Scrolling," he says, "FreeHand's sole failing is that it doesn't let you save custom views." Unless I'm misunderstanding what he means, I believe the program *does* let you save and recall custom views every time you open the program. Under the Document category of the Preferences palette, you can check the box labeled Restore Last View When Opening Document. You can then save a document while zoomed in on a detail at, say, 800 percent. When you open the document again, you will find yourself looking at that same object at 800 percent.

DALE SANDERSON
Aurora, Colorado

FreeHand is the only program that doesn't let you save a cadre of custom views that you can call up and revisit any time while working with the program. While remembering the last view from one session to the next is useful, custom views let organized users quickly navigate to places where they've been in the past.—Deke McClelland

Better, Smaller Web Browser

I HAD JUST DECIDED THAT IT WAS TIME to replace my old and beloved Mac SE with a newer Mac so I could use one of the standard browsers to surf the Net. Feeling rather like someone looking for a vet to put their old hound to sleep, I purchased the December 1996 *Macworld* to read the Mac reviews.

There I found Charles Seiter's "Better, Faster Web Searching" and read

about MacWeb (*NetSmart*). Hallelujah! Sure enough, MacWeb has enabled my antique Mac to get me anywhere in the world I want to go. Since I am cruising the Web for information instead of sensory input, MacWeb actually suits my needs better than the bigger, more commonly used browsers.

The only, yet rather large, problem is that since EINet, MacWeb's original publisher, has merged into TradeWave, the MacWeb online help page is no longer available. You pointed that out in the article, but I wonder if there is any chance the help page might live on somewhere else. If not, are there any other sources to help me figure out some of the program's features?

JOHN BREUER
Vancouver, Washington

That's right; TradeWave is no longer supporting MacWeb or its PC twin, winWeb, outside of its corporate-oriented package, TradeVPI. Some information is available at the company's Web site (<http://www.einet.net/EINet/MacWeb/MacWebHome.html>), but your best bet for help and advice is the Usenet group comp.infosystems.www.browsers.—Ed.

Ignorami

NOT THAT I'M USUALLY THE CHAMPION of large pizza corporations, but I think a magazine ought to pay attention to small details, even if they're not exactly computer related. Your review of *Origami: The Secret Life of Paper (Holiday Gift Guide, January 1997)* should have said that the pizza company with the clever pterodactyl commercial is, of course, Little Caesars. Domino's, like Apple, wouldn't know a clever ad if one fell on their head along with free twisty bread and a two-liter bottle of Jolt!

ERIC MILLER
Norwalk, Connecticut

Letters should be sent to *Letters*, Macworld, 501 Second St., San Francisco, CA 94107; via fax, 415/442-0766; or electronically to CompuServe (70370,702), MCI Mail (294-8078), America Online (keyword *Macworld*), AppleLink (*Macworld1*), or via the Internet (letters@macworld.com). Include return address and daytime phone number. Due to the high volume of mail received, we can't respond personally to each letter. We reserve the right to edit all letters. All published letters become the property of *Macworld*. **m**

Bryce 2

The natural 3D design tool

With Bryce 2, you'll have a way with worlds. No other 3D package

makes it so **easy** to design photorealistic and surreal 3D

scenes. Bryce 2's **intuitive** interface controls,

instant previews and material libraries let anyone

experience **real-time** creativity. Play with sky,

sunlight, clouds, fog, water and mountains. Then watch Bryce 2's

powerful raytracing engine render detailed scenes you

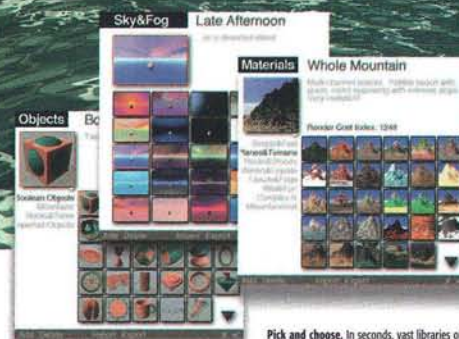
can practically step into. As the experts at *Publish Magazine* said,

Bryce 2 "makes the hard stuff easy, even **fun**."

Find out more! 800.472.9025 Mention Dept. BM04

ASK ABOUT OUR NEW BRYCE ACCESSORY KIT.

Cool "how-to" tips plus hundreds of ready-to-use models, materials and skies—all for just \$49.95*!



Pick and choose. In seconds, vast libraries of mountain, terrain, object and sky presets help you start creating gorgeous 3D imaging for landscape backgrounds, game scenes, Web pages and multimedia.



See it as it happens. Bryce 2's nifty Nano Preview changes with the weather (and everything else), giving you constant updates of your scene in progress.

Change your perspective. For precise positioning of mountains, spheres and other objects, view your scenes from top, side and bottom angles.

Zoom in and out. Reposition your view along x, y and z axes, simply by clicking and dragging on easy-to-use interface controls.

Bring 3D scenes to life. Click here and watch Bryce 2 render perfect shadows, realistic reflections and detailed textures.

MetaTools
The Visual Computing Software Company
<http://www.metatools.com>

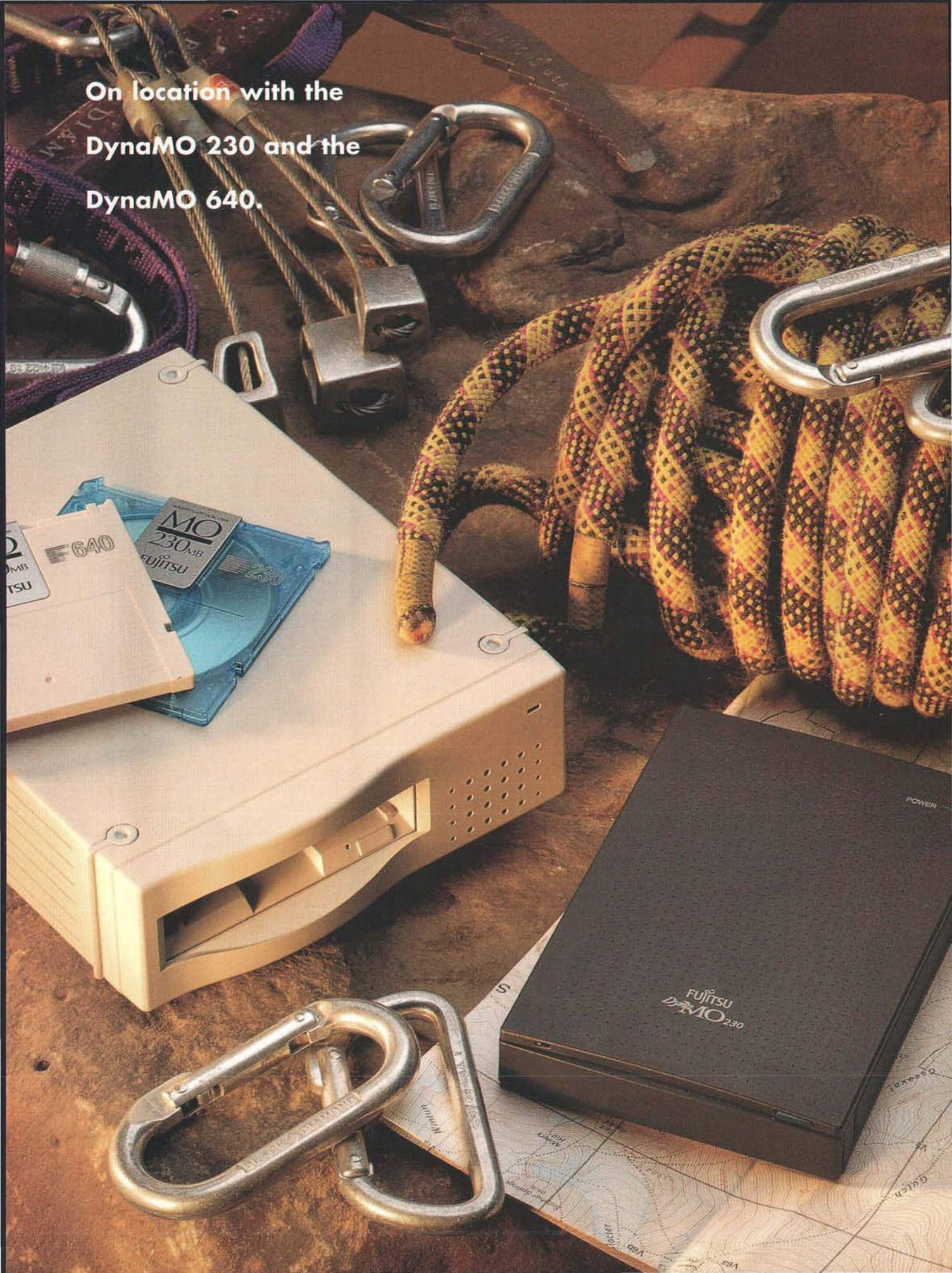


★★★★★ 7.7

©1997 MetaTools, Inc. 6303 Carpinteria Ave., Santa Barbara County, Carpinteria, CA 93013 • TEL 805.566.6220 • FAX 805.566.6385 • INTERNET metatools@aol.com • Play new "MetaSquares" on America Online (Keyword: MetaSquares). Bryce is a registered trademark and MetaSquares and Natural 3D Design are trademarks of MetaTools, Inc. "Cambrian Pipeline" created and rendered entirely in Bryce by ArtEffect Design Studio, Los Angeles. *Offer good for a limited time in the U.S. and Canada. Shipping and handling charges apply.

Circle 5 on reader service card

On location with the
DynaMO 230 and the
DynaMO 640.



Only One Company Can Give You **Removable Storage** This Rugged and Reliable. **Fujitsu.**



When rock climbing, you'd never compromise with the tools you use. The same idea applies to backing up, transferring and transporting critical files. You need no-nonsense tools you can rely on every day. • That's where the DynaMO® 230 and the DynaMO 640 come into the picture. They combine the storage capacity you want with the reliability you absolutely need. • This high level of security makes DynaMO the perfect tool for designers who need to transport and transfer graphics files, for sales organizations that need to store multimedia presentations on a single disk, and for government agencies that need to archive records. • In fact, you won't find removable storage that's more rugged or reliable. A single MO disk has a life span of over 10 million writes and over 100 million reads • Which leads us to Fujitsu's customer support policy. No Excuses™. More than just a slogan, it's our commitment to provide you with the ultimate in service, including technical support at no charge. Which is just another way of saying, Fujitsu has set a new standard of excellence in removable storage. • The DynaMO 230 and DynaMO 640. When you add it all up, everything that matters is DynaMO



You're looking at the most reliable ways to backup, transport and transfer data ever devised—the DynaMO Portable PC Card, DynaMO 640 and DynaMO 230. The perfect solutions for people who want it all: price, performance and dependability.

driven. • DynaMO 230 and the DynaMO 640 are available wherever quality removable storage drives are sold. For more information, call 1-800-626-4686, ext. 3141. Or discover DynaMO on our website at <http://www.fcpc.com>.

DynaMO 640

- 640MB per disk
- Backwards compatible with 540MB, 230MB and 128MB media
- Internal or external versions for desktop systems
- Interface: SCSI-2
- Access Rate: 35ms
- Maximum Transfer Speed: 3.9MB/Sec.
- Cache: 512KB/2MB

DynaMO 230

- 230MB per disk
- Backwards compatible with 128MB media
- Maximum Transfer Rate: 1.6MB/Sec.
- Cache: 128KB/512KB
- External and internal versions for portable and desktop systems

FUJITSU



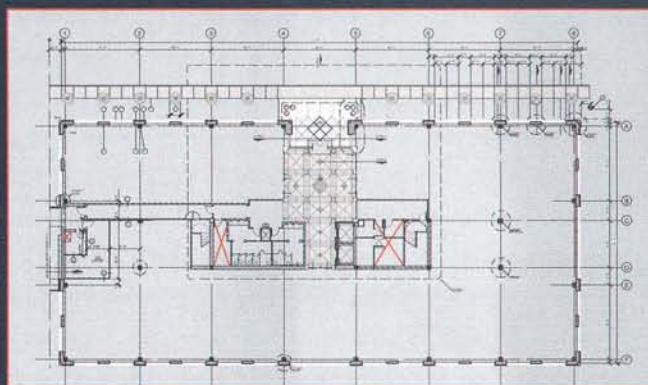
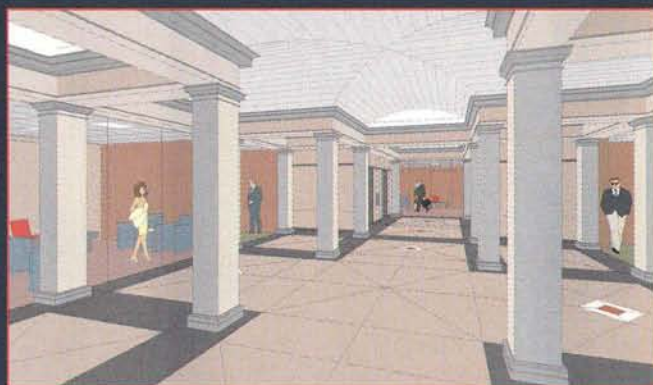
For your chance to win a vehicle as rugged as our drives, discover our website at www.fcpc.com

© 1997 Fujitsu Computer Products of America, Inc. All rights reserved. DynaMO is a registered trademark and No Excuses is a trademark of Fujitsu Computer Products of America, Inc. All trademarks are property of their respective companies.

No purchase necessary. Sweepstakes is open to legal US residents 18 years and older. To enter Fujitsu Land Rover Discovery General Sweepstakes, visit the Fujitsu Computer Products of America website at <http://www.fcpc.com>. To enter by mail, hand print your name and complete address (including zip code) plus day time and evening telephone numbers on a plain piece of 3" x 5" paper. Mail your entry in a hand addressed #10 envelope with first class postage affixed to: Fujitsu Land Rover Discovery General Sweepstakes, PO Box 18829, Irvine, CA 92623-8829. Limit one entry per person. No mechanically reproduced entries permitted. Entries must be received no later than May 12, 1997. Random drawing will be held on or about June 10, 1997. One Grand Prize: 1997 Land Rover Discovery SD, approximate retail value \$34,000. All taxes (except first year vehicle registration) are the sole responsibility of the winner. Odds of winning depend on the number of eligible entries received. This sweepstakes subject to Official Rules. For a copy of Official Rules write to: Fujitsu Land Rover Discovery General Sweepstakes Rules, PO Box 18829, Irvine, CA 92623-8829. Void where prohibited by law. The vehicle awarded may differ in color and equipment from vehicle shown.

Circle 202 on reader service card

The Easiest, Most Cost-Effective



Way to Design

—Audience Vote at the Designers CAD Shoot-Out

The general-purpose MiniCad went toe-to-toe against industry-specific CAD programs nearly six times as expensive—and

came out on top—at the first-ever Designers CAD Shoot-Out for Architectural CADD Systems. In this advent of “architecture as a spectator sport,” the audience at Boston’s World Trade Center awarded MiniCad 6, fittingly, six first-place awards:

- Most Cost Effective
- Easiest to Use
- Best at Cross-Platform Operation
- Best Floor Plans
- Best Elevations
- Best Sections

MiniCad also placed a close third in the Overall Winner category (garnering 21% of the audience vote compared to Arris’ 25% and ArchiCad’s 24%), beating out AutoArchitect, Microstation Triforma, AllPlan, Architrion, and DataCAD. Even more impressive: MiniCad was the only software program running on both a Macintosh and a Windows machine during the event. This recent success is not surprising. For years MiniCad has been the top-selling CAD program on the Macintosh, winning industry

awards worldwide. And the reviews for the recently released Windows version have all been emphatic.

To find out more about the CAD Shoot-Out or how professionals in more than 80 countries have used MiniCad—designing everything from a guitar to a zero-gravity manufacturing device; building houses, luxury high rises, shopping centers, and hockey arenas; planning the stage set and lighting for worldwide Metallica tours; even helping reconstruct Shakespeare’s historic Globe Theatre—check out our web page (www.diehlgraphsoft.com) or call 1-800-413-0935.

MiniCad has a suggested retail price of \$795, and it comes with 18 months of free tech support and a 30-day money-back guarantee from participating dealers. MiniCad 6 supports Windows 95, NT, 3.1, and Macintosh OS.

Diehl Graphsoft Inc
Software for Today’s CAD Professional

MiniCad is a trademark of Diehl Graphsoft, Inc.
All other brands and product names are trademarks of their respective holders.
Above building designed by David A. Bruhnke, Herring & Trowbridge Architects.

MiniCad 6 —The only thing small is the price.

Circle 46 on reader service card

State of the Mac

by Adrian Mello

Casting Out the Blue Meanies

APPLE MUST LEARN TO COMMUNICATE EFFECTIVELY

IT'S BEEN A YEAR SINCE GIL Amelio took over the role of chairman and CEO of Apple Computer and began a crusade to turn the company around. In the last year Amelio has made significant improvements to Apple, but a cloud still hangs over the company. Accountability is being pushed down into the organization, the company is managing its business more professionally, and it has a good technology plan. But people still worry about Apple's health. And this compounds its problems because people who worry about Apple are afraid to buy Macs.

Apple's biggest problem is its continuing inability to manage perceptions about its prospects for the future. Apple must aggressively confront this problem if it is to clear the cloud of doubt that is slowing the rejuvenation of the company. I and most other Mac advocates are sick of smug naysayers. It's time to combat the blue meanies.

Simplify the Terms for Success

Apple has failed to articulate a clear and persuasive message about how it will move beyond its current difficulties. Until people understand Apple's formula for success, all the company's efforts will be hindered by lingering doubt. This is a challenge because Apple's business is so complex. I think Apple and everyone else gets lost in all the complexity.

My advice is to keep the message simple. Most of Apple's revenue comes from selling computers. Beyond that, Apple's business also depends on the overall health of the Mac market. Apple needs to explain how it's going to grow the Mac market overall and how it's going to make a profit selling Apple-branded Macs. Apple says it can succeed by offering the best computers and the best operating systems for publishing, multimedia authoring, education, and a few other target markets. I think it's right, but it

needs to make sure everyone understands this by clearly explaining why.

Take Communications Seriously

Apple must devote resources and orchestrate its message as if its life depended on it. The communications plan can't be the kind of reactive, fly-by-the-seat-of-the-pants approach characteristic of the past. It must be understood and supported by company executives—not just delegated as an annoyance to lower-level managers.

The company must identify key influencers that can help turn perceptions

Clarify the OS Plan

Finally, Apple often fails to explain its technology in terms that are meaningful to customers. The most recent example of this is how Apple handled the communication of its new plans for the OS. It's a good plan, but customers have a hard time relating to jargon like "Yellow Box," "Blue Box," and "Pink Box," "symmetrical multiprocessing," and "pre-emptive multiprocessing." Confusion breeds doubt. The danger is that customers who worry about future compatibility with the new OS may unnecessarily hold off on buying computers and software. This slows down sales and ends up contributing to stories about the poor health of the Mac market.

For example, here's a recent e-mail from a reader: "My boss uses a Centris 610 (of which she is terrified) that runs on System 7. She's agreed to upgrade, but I wonder if we're better off waiting for the new OS in a year or two. What does buying a new computer now mean in terms of upgrade ease once Rhapsody is released and becomes commonplace? I'm a little confused."

Apple has good answers (see *News* in this issue), but it isn't getting them across. First,



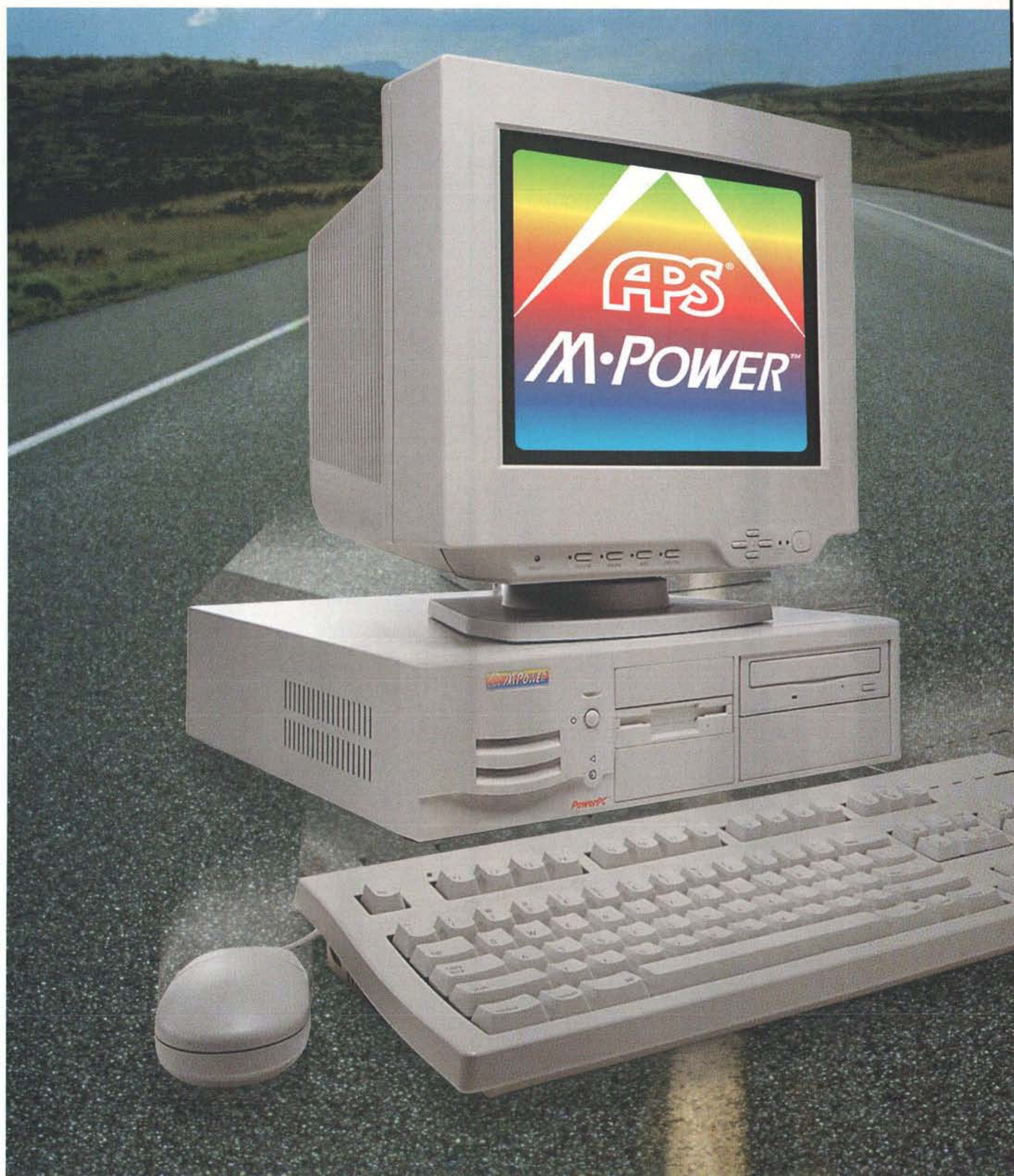
around. My short list includes the media, Apple's existing customers, developers, and investors. I put the media first because Apple and all of its constituencies are affected by how the media portray the Mac's health and well-being. Recent stories in the *Wall Street Journal*, the *New York Times*, and the *San Francisco Chronicle* tell me that Apple is still having problems convincing reporters that it is on the road to health. My advice is simple: figure out why they don't understand or believe Apple's plan, then convince them that the plan is a good one.

the company has committed to updating and supporting System 7 for the foreseeable future, so System 7 users won't be abandoned. Second, System 7 applications will run on the same computers as apps written for Rhapsody (the new OS), at the same time, and without rebooting. Third, all currently sold Macs will run Rhapsody when it arrives.

Simply put, this means you can go ahead and buy a new Mac without worrying too much about compatibility problems. Apple needs to send this message loud and clear. **m**

IT DOES 0-60 IN

F U Z Z Y D I C E



3 NANOSECONDS

N O T I N C L U D E D



Like a fine automobile, the APS M•Power series of computers has been precision crafted to meet demanding specifications. From the speedy 603e180 to the lightning fast 604e200, all of our systems have been built using only the highest caliber parts and peripherals to ensure that your ride is a smooth one. If you ever hit a bump, remember that we're here to help with the best customer service and technical support in the industry.

APS M•POWER 603e160™ comes with these appointments: 160MHz Motorola® PowerPC 603e processor • 1.2GB hard drive • 10X CD-ROM • 16MB of DRAM • 1MB of VRAM • Desktop enclosure w/3 PCI slots • 2 year parts & labor warranty. Just **\$1299***

APS M•POWER 603e200™ comes with these appointments: 200MHz Motorola® PowerPC 603e processor • 1.2GB hard drive • 10X CD-ROM • 16MB of DRAM & 256K L2 Cache • 1MB of VRAM • Desktop enclosure w/3 PCI slots • 2 year parts & labor warranty. Only **\$1599***

APS M•POWER 603e240™ comes with these appointments: 240MHz Motorola® PowerPC 603e processor • 2.5GB hard drive • 10X CD-ROM • 24MB of DRAM & 256K L2 Cache • 1MB of VRAM • Tower enclosure w/5 PCI slots • 2 year parts & labor warranty. Just **\$1999***

APS M•POWER 604e200™ comes with these appointments: 200MHz Motorola® PowerPC 604e processor • 2.5GB hard drive • 10X CD-ROM • 24MB of DRAM & 512K L2 Cache • 2MB of VRAM • Tower enclosure w/5 PCI slots • 2 year parts & labor warranty. Now **\$2399***

STANDARD EQUIPMENT: All M•POWER systems are generously outfitted with a floppy drive, ADB keyboard, ADB mouse, printer port, modem port, ADB port, SVGA monitor port (supporting 14", 15", 17" & 21" monitors), 2 PS/2 ports, SCSI port, IDE bus, ATAPI bus, 16-bit sound output port, rear headphone jack and a microphone jack to make computing much more enjoyable. All M•POWER systems are ready to grow with you – the M•POWER 603e160 and the 603e200 desktop systems have four internal bays, while the M•POWER 603e240 and the 604e200 tower systems have eight internal bays. These features and many more make the APS M•POWER systems the best value in Mac computing.

*Monitors are not included. Filling all available drive bays may exceed power limitations.

Motorola and Motorola logo are registered trademarks of Motorola, Inc. PowerPC is a trademark of International Business Machines Corp. and is used by Motorola, Inc. under license from International Business Machines Corp. Microsoft is a trademark of Microsoft Corporation. Windows NT is a registered trademark of Microsoft Corporation. APS is a registered trademark of International Business Machines Corp. Mac OS is a registered trademark of Apple Computer, Inc. M•Power, APS and APS Technologies are registered trademarks of Alliance Peripherals Systems, Inc. Other brand or product names are registered trademarks or trademarks of their respective holders. Prices and specifications are subject to change without notice.



APS
Technologies

**THE NAME TO REMEMBER IN
MACINTOSH COMPATIBLE PRODUCTS!**

Call this special number **800-926-0693**

See pages 158-159 in this issue for more information about M•POWER Systems and APS peripherals.

News

systems

What the New OS Strategy Means to You

NO EFFECT ON
CURRENT MACS OR
SOFTWARE PURCHASES
by Galen Gruman

The dust is finally beginning to settle on Apple's plan for bringing a new operating system to the Mac. Based on the OpenStep OS acquired when Apple bought Next for \$400 million in December (see "What's Next for the Mac OS?" in *News*, March 1997), the future OS has users and developers alike asking what it will mean for their current Mac hardware and software and for their future investment decisions. The good news is that little changes for today's decisions.

Apple's Goals Explained

With the acquisition of Next and its OpenStep OS, Apple has charted an ambitious plan to move the Mac from the current Mac OS to the OpenStep OS while retaining compatibility with today's Mac OS programs. By providing compatibility with the current Mac OS, Apple hopes to get users to accept the NextStep

OS and begin to use OpenStep programs instead of Mac OS programs. Apple's current design calls for three OSs—OpenStep, Mac OS, and Java—running simultaneously. The goal is to make them run together transparently so users don't realize that there are actually three OSs running. (This is similar to how 680X0 and PowerPC programs co-exist on today's Power Macs.)

To do so, Apple is creating what it calls the Mac OS compatibility environment (code-named the Blue Box). This is the Mac OS running on top of the kernel, which is the software that translates OS instructions into commands the Macintosh hardware and peripherals understand. OpenStep (code-named the Yellow Box) would likewise run on the kernel, as would Java

applications. Apple's hope is that users won't see three OS windows on their desktop, but simply the same unified desktop that the Mac OS has today, with three kinds of programs available with a simple double-click.

The whole project—OpenStep, Java, the Mac OS compatibility environment, and the kernel—is code-named Rhapsody.



GORDON STUDER

Current Decisions

Apple is still making decisions on details, but the following key issues are clear.

Time Line Apple expects to have a developer version of Rhapsody available by mid-year, with the first general release of Rhapsody, called Rhapsody Premier, available in January 1998; neither of these releases would include the Mac OS compatibility environment.

In mid-1998, Apple hopes to have the full Rhapsody available, including the compatibility environment.

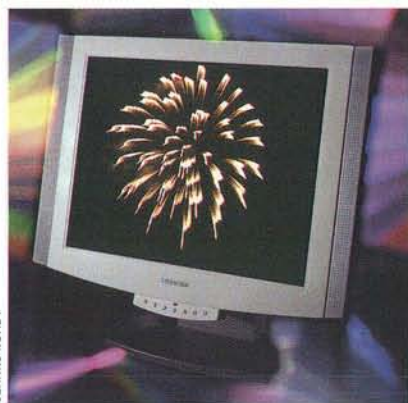
At the same time, Apple is enhancing the current Macintosh OS, with plans to ship a version code-named Tempo in July 1997, a version code-named Allegro in January 1998, and a version code-named Sonata in mid-1998. The mid-1998 Rhapsody release would integrate the Sonata version of Mac OS 7 in its compatibility environment.

What Kernel? After evaluating several options, Apple announced in February that it will adopt a version of Mach, the kernel used by OpenStep.

Program Compatibility Because the Mac OS compatibility environment will be the actual Mac OS 7 running on the Rhapsody kernel, almost every System 7-compatible program will run under Rhapsody. Exceptions are system extensions and programs that deal directly with the Mac hardware, since they will not know how to work through the new kernel.

Still, this is better compatibility than Apple's previous Copland effort promised; Copland would not have supported any extensions. And many Mac OS 7 programs would have had trouble running under Copland because Copland was to have used a rewritten version of Mac OS 7 that would likely have

continues on page 42



Toshiba is one of many vendors now offering LCD monitors.

display

LCDs Hit the Market

PRICES STILL TOO HIGH FOR MASS CONSUMPTION

by Stephen Beale

The future of display technology is here. LCD monitors for desktop Macintosh systems, nearly nonexistent only a year ago, are suddenly available from a host of vendors. Nearly every major developer of CRT display systems has announced an LCD product.

Early Adopters These vendors are clearly banking on tomorrow. For all their advan-

tages over CRTs—smaller footprint, less power consumption, a flat screen that eliminates many kinds of distortion—LCD displays are costly, with the least-expensive active matrix units priced just under \$3000.

Vendors are looking to a handful of niche markets to spur initial interest in the new displays.

These include financial traders, who need to maximize desk space, and the medical profession, for which some equipment cannot be operated near CRTs and their powerful magnets. Eventually, the vendors reason, demand will increase and manufacturing costs will decline.

The Players Nearly every major CRT vendor has announced an LCD display for desktop machines. The first wave hit at fall Comdex in Las Vegas, which featured LCD product announcements by Eizo Nanao (310/431-5011, <http://www.eizo.co.jp/welcome>), Fujitsu (408/922-9000, <http://www.fujitsu.com>), Hitachi (770/279-5600, <http://www.hitachi.com>), NEC Technologies (630/775-7900, <http://www.nec.com>), Panasonic (201/348-7000, <http://www.panasonic.com>), Sharp Electronics (201/529-8731, <http://www.sharp-usa.com>), Toshiba America (714/455-2000, <http://www.toshiba.com>), and ViewSonic (909/869-7976, <http://www.viewsonic.com>).

Noteworthy among these were Panasonic's \$2800 PanaSync LC40, which is 2.5 inches thick and features a 14-inch-diagonal viewing area, maximum resolution of 1024 by 768 pixels, and 24-bit color depth. Sharp's QD-101MM, priced at \$2995, features 640-by-480-pixel resolution and a 10.4-inch-diagonal viewing area. ViewSonic's PV140,

priced under \$2500, features 1024-by-768-pixel resolution, 24-bit color, and a 14-inch-diagonal viewing area.

At Macworld Expo in January, Portrait Displays (510/227-2700, <http://www.portrait.com>) announced the PageMaster and PageView LCD displays, both based on a 15-inch Sharp panel. Expected to ship by May, both displays have dual-orientation capabilities—they can be used in portrait or landscape mode. The PageMaster uses a pivoting mechanism to switch between portrait and landscape, while the PageView must be removed from its stand and remounted. Both offer maximum resolution of 1024 by 768 pixels, a 15-inch-diagonal viewing area, and the ability to display up to 65,000 colors.

Unlike most other LCD displays, which are based on active matrix technology, the Portrait displays are based on less expensive passive matrix technology. While final pricing has not been set, Portrait says the PageView will be priced no higher than \$1500, with the PageMaster coming in below \$1800.

online

How to Crash a Web Server

TYPO BRINGS DOWN WEBSTAR WITH NETCLOAK PLUG-IN

by Jim Heid

Every Web surfer has mistyped a URL only to get an annoying error message. But for Macintosh Webmaster Jeff Gold, frustration turned to alarm when he realized that a mere typographical error

continues

MAC OS IN FOCUS

APPLE HAS FINALLY RELEASED MAC OS 7.6 AND MACINTOSH JAVA RUNTIME, BUT ARE THEY RIGHT FOR YOU? MACWORLD PRESENTS A SPECIAL MAC OS UPDATE ON PAGE 34.

display

New Digital-TV Standards Bode Ill

COMPUTER USERS

WILL BE DISAPPOINTED

by Cary Lu

The new, advanced television standards, widely heralded for bringing TV into the digital, high-definition era, have turned sour for computer users. This isn't a complete surprise, considering that television standards have lasted for more than 50 years, while computer standards often last less than 50 months.

The four television-industry groups that originally made competing proposals for high-definition television standards joined forces to create a Grand Alliance digital-television standard, complete with prototypes that were tested in 1995. The complex Grand Alliance proposal specifies 18 video formats, many of which carry compromises of the past into the digital age. Some formats are interlaced—a frame is broken into two alternate fields of even and odd lines. Others have nonsquare pixels—the number of pixels per inch is different in horizontal and vertical directions—a severe problem for flat-screen displays. And the highest frame rate is a flicker-prone 60Hz.

Then the computer companies (including Apple and Microsoft) joined the fray, arguing that the Grand Alliance proposal clashed with the computer companies' vision of a convergence of computers and television,

since interlacing, nonsquare pixels, and 60Hz frame rates were all abandoned years ago for computer displays. But the computer companies built no equipment and offered no specific alternatives; some argued that video standards should be decided by the marketplace.

In December, the Grand Alliance and the computer companies agreed to what was called a compromise: the Grand Alliance method for broadcasting bits would be used, but without any specific video formats. The compromise retained the Dolby AC-3 sound format. Many reports proclaimed that the computer companies had won.

TV 1, Computers 0 In fact, the compromise was a complete victory for the Grand Alliance. The first groups to get enough advanced TV sets out to the consumers will set a de facto standard. So the Grand Alliance TV makers (Philips/Magnavox, Thompson/GE/RCA, and Zenith) will sell Grand Alliance sets, with their 18 video formats, just as they had planned all along. These TV sets will receive only those 18 fixed formats; they will not be upgradable like a computer.

Technically, the compromise allows broadcasters to send programs in any video format, but there's no reason for them to use anything but a Grand Alliance format rather than a computer-friendly one. Computer industry proponents suggest that a program might be sent in both Grand Alliance and computer formats simultaneously (a single digital VHF or UHF channel can carry multiple programs), but that's unlikely to happen, since broadcasters will make more money by sending two separate TV programs.

continues

caused his entire Mac-served site to crash.

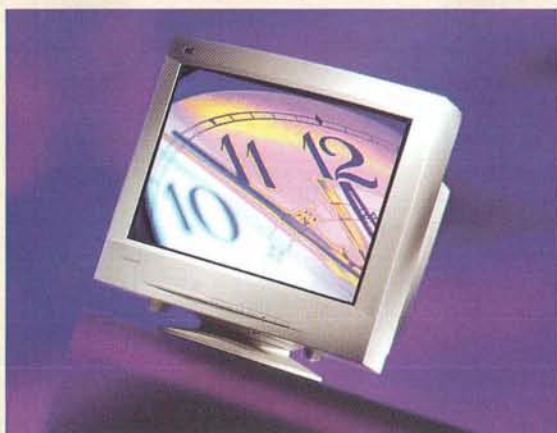
Gold encountered the problem on Web servers running StarNine Technologies' WebStar 1.3.1 and 2.0 with the plug-in version of Maxum Development's NetCloak 2.1, a popular WebStar plug-in that adds dynamic elements to Web pages. He discovered that adding certain characters to the end of a URL crashed NetCloak, bringing down the server. To protect the thousands of sites served by the WebStar/NetCloak combination, neither Gold nor *Macworld* will publicly reveal the character sequence, but it's one that would not be too difficult to enter.

In *Macworld* tests, the

problem surfaced only when a WebStar server was running the NetCloak plug-in. Using the NetCloak CGI with the plug-in removed generated only an error message.

Quick Fix Maxum quickly posted an update, NetCloak 2.1.1, on its Web site to fix the problem. Maxum also said that it tested both the CGI and plug-in versions of NetCloak 2.1 with Apple Personal Web Server, Microsoft Personal Web Server, and Quid Pro Quo, and was unable to duplicate the problem.

Maxum can be reached at 630/830-1113, <http://www.maxum.com>; StarNine Technologies can be reached at 510/649-4949, <http://www.starnine.com>.



ROBERT PERRY

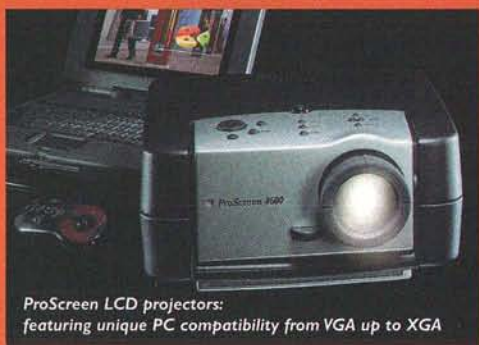
A Refreshing Display

When you're throwing millions of pixels on a computer screen, you need every speed advantage you can get. The PT813 Professional Series monitor from ViewSonic (909/869-7976, <http://www.viewsonic.com>) is a 21-inch display that features an 85Hz refresh rate at 1600-by-1200-pixel resolution and 99Hz at 1280 by 1024. Targeted at color graphics, publishing, and digital-video applications, it uses aperture grille technology for precise color reproduction. Other features include on-screen controls, ViewMatch color calibration, and an antireflection, antiglare screen treatment. The street price is \$1895.—STEPHEN BEALE

Facing a tough audience?



**Relax. You'll feel comfortable,
look good presenting with a
Philips LCD projector.**



ProScreen LCD projectors:
featuring unique PC compatibility from VGA up to XGA

Everything about the new Philips Brilliance LCD projectors is designed to boost your confidence. Unique Limesco technology offers future-proof PC compatibility and instant recognition of connected equipment. Hassle-free operation lets you concentrate on your performance, not your projector's. You'll impress your audience with award-winning picture quality. And with the Philips Ultra High Performance lamp you'll project brighter pictures for up to 5 times longer than with a conventional lamp. Sounds like what you need to win over your next audience? Simply return the attached reply card, call Philips directly 1-800-504-9978 or visit our Web site at <http://www.philipslcd.com>

Let's make things better.



PHILIPS

Apple Reorganizes Again

OUTSIDERS GAIN KEY POSITIONS IN THE COMPANY

by Stephen Beale

Reeling from a \$120 million quarterly loss and an admission that the company was still a half year away from sustained profitability, Apple announced yet another corporate restructuring on February 4. The new structure anticipates a smaller Apple, with a tighter focus on the Mac OS and other core product areas. It centralizes decision-making authority, which CEO Gil Amelio says is needed as the company deals with its latest crisis. Eventually, he says, Apple may go back to a more decentralized divisional structure.

Under the old organization, announced last May, all key product divisions, plus marketing and sales, reported to Chief Operating Officer Marco Landi, while Chief Technology Officer Ellen Hancock led the Mac OS development effort. Under the new structure, Landi and Hancock both have diminished roles. Landi now heads worldwide sales and support, while Hancock retains only responsibility for reliability and quality, the chief scientist, Apple fellows, and the Advanced Technology Group. Both still report to Amelio.

The Mac Takes Center Stage Leading Apple's product development efforts will be two respected newcomers. Avie Tevanian, formerly head of Next's operating-system group, heads Mac OS development, while Jon Rubinstein, former chief operating officer of FirePower Systems, a developer of PowerPC-based workstations, and a veteran of Next's hardware business, leads Mac hardware development. The new organization puts the Mac system hardware and OS groups as Apple's main focus.

In a strange twist, Apple's highly profitable Imaging Division, which handles printers, scanners, and monitors, is part of the Operations Group rather than a peer to Apple's systems groups. This is further evidence of the company's new focus on its troubled core systems business.

New Marketing Focus In a conversation with *Macworld* before the reorganization announcement, Amelio said that he would make Mac marketing a strong priority in 1997, after a year of confused and absent messages about the Mac's strengths. The new organization should help Apple deliver on that priority. Apple's marketing functions have been consolidated into a new group led by Guerrino De Luca, formerly chief at Claris. (Claris, now part of Landi's sales operation, is led by Dominique Goupil, who had managed Claris's sales and marketing.)

Pippin on the Chopping Block Missing from the new chart is a home for the Pippin Internet-TV device and the Newton PDA. Amelio said in late January that Apple would drop Pippin—and hinted that Newton could also be on the chopping block—but during the February 4 announcement, Chief Administrative Officer George Scalise said that no final decisions in these areas had been made. However, Bandai Digital Entertainment, which has licensed Pippin from Apple, has already announced that it will support the technology on its own.

Operations, Administration Largely Unaffected Chief Financial Officer Fred Anderson will lead the Finance and Administration Group, while Scalise will head the Operations Group, which is responsible for human resources, government relations, and legal matters. Except for Scalise's new responsibility for the Imaging Division, these two executives had only minor changes to their responsibilities.

Inferior Video Therefore, the relatively poor quality of video that appears on today's computer screens will remain with us for several decades. Although Grand Alliance pictures look much better than NTSC television (the current standard), the quality is much lower than what is possible with today's technology. A computer-friendly picture format—no interlacing; square pixels; a high, 72Hz frame rate—makes for better television. DemoGraFX (<http://www.earthlink.net/~demografx>), a small company in Santa Monica, California, has a working system with such improvements that produces significantly better pictures—at lower cost—than the best the Grand Alliance can deliver.



Why the rush to a weak compromise? TV broadcasters want a second VHF or UHF channel for digital broadcasting without paying any spectrum fees; they want to get free access to those channels before Congress decides to auction them off. The broadcasters simply wanted an agreement—any agreement—so they could press for their new channels immediately.

Weak Arguments The computer companies are in a weak position because they've presented no convincing scenario for a convergence of computers and TV. Apple Fellow Don Norman suggested that digital TV would allow view-

ers to browse a batter's stats interactively during a baseball game—a terrible idea from a broadcaster's stand-point. Viewers are supposed to watch commercials; why give them a way to do something else?

To persuade the broadcasters, computer companies should have been promoting interactive commercials.

At least the Grand Alliance follows in the tradition of industry-led television standards. The original television standard, supported by RCA, called for only 441 lines and a small, 2.5MHz video bandwidth. Only after a major fight did RCA accept a big improvement to 525 lines and a 4.2MHz video bandwidth in 1941. The first color television standard, promoted by CBS and approved by the Federal Communications Commission in 1951, was a sequential color system that was incompatible with monochrome television. It was a disaster; CBS abandoned the system after five months.

RCA later introduced its NTSC color system with monochrome compatibility.

The Grand Alliance formats look so much better than NTSC that they won't be a five-month wonder. When the first Grand Alliance TV sets arrive in 1998, few people will know enough about the process to understand how much better the pictures should have been. And they won't hear about it from anyone in the Grand Alliance or the computer companies that were a party to the compromise: under the terms of the compromise, all the parties agreed not to criticize any video formats or do anything that might jeopardize the broadcasters' getting their second channels for free.

XCLAIM VR

— it's five on the floor
plus a whole lot more
from **ATI**



Supercharged
3D acceleration.



Big screen TV output. Now anything you display on your computer can be output to your TV, even recorded to video tape.



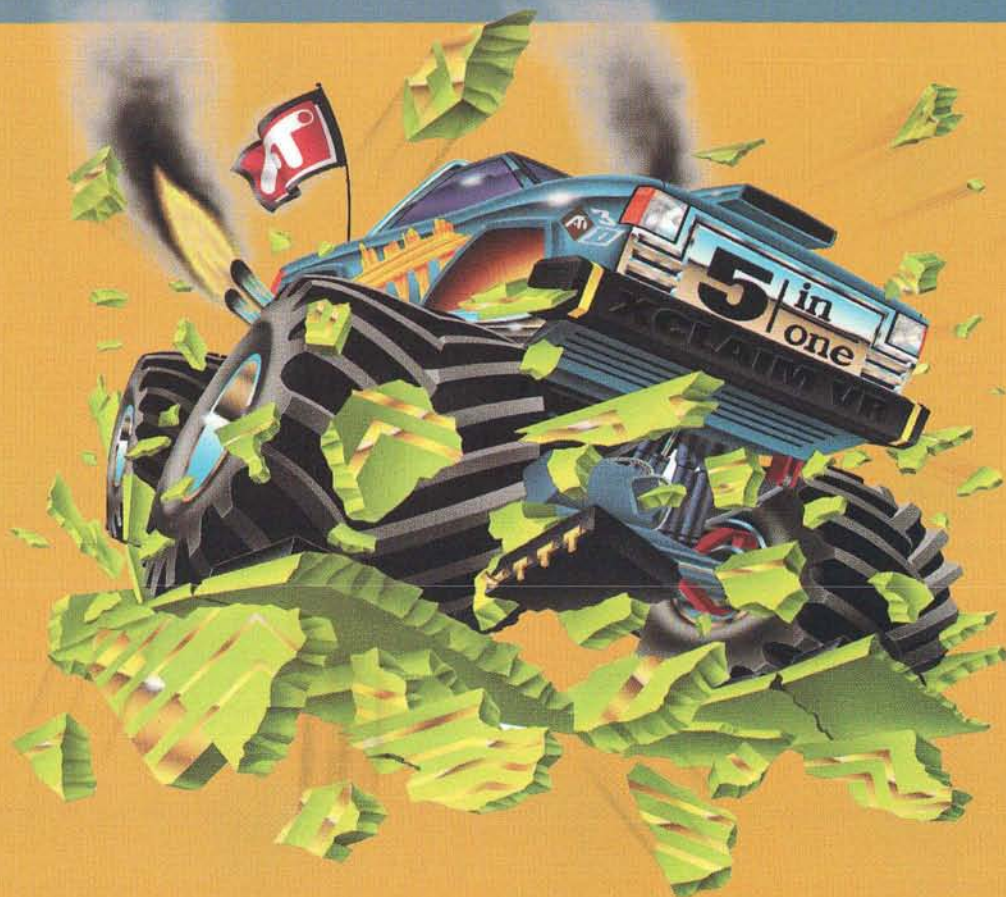
Bigger, brighter and faster graphics
no compromise 2D performance in
true color up to 1152x870.



Video capture lets you grab images
and video from your VCR, camcorder
and laserdisc so you can add multimedia
to any project.



Full-screen, TV-quality
QuickTime playback.



Finally, a product that lends more muscle to your PCI Mac. ATI's XCLAIM VR. It's five must-have graphics and multimedia functions revved up into one complete solution, giving you the power to conquer it all. Play, create, view, display or output 3D, 2D and video. This is full-out 3D acceleration, heart-stopping graphics performance, high-gear video playback, MAC2TV capabilities and more for just \$269*. See your dealer today, check out www.atitech.com, or call us at (905) 882-2600 (press 2 for faxback).

© ATI Technologies Inc., 1997. ATI, Xclaim VR and Now You See It are trademarks and/or registered trademarks of ATI Technologies Inc. All other product names are trademarks and/or registered trademarks of their respective owners. *Suggested (\$115) retail price for 2MB upgradeable version.



MICRO CENTER



Now You See It.™



Circle 256 on reader service card

Mac OS

IN FOCUS

What's New in Mac OS 7.6

UPDATE OFFERS CONVENIENCE AND BUG-FIXES, BUT FEW NEW FEATURES

It's finally here. Apple has released Mac OS 7.6, its latest system software update, along with Macintosh Java Runtime, which allows you to run Java applications on your Mac. In this special report, *Macworld* examines these latest software releases and what they mean for Macintosh users.

Should You Buy Mac OS 7.6?

SOME MAY WANT TO WAIT FOR TEMPO
by Franklin Tessler

Mac OS 7.6 is the first in a series of updates to the system software that Apple plans to ship through at least 1998, when the next-generation OS is scheduled to debut (see "What's Next for the Mac OS?" *News*, March 1997). But a dearth of new features, and the promise of a far more comprehensive upgrade (code-named Tempo) in July, make Mac OS 7.6 (formerly known as System 7.6) a less-than-compelling investment for many users, particularly since it costs as much as \$129 to upgrade.

What's New

Although Mac OS 7.6 provides several interface enhancements, many of the changes involve components that are seldom used. For example, Apple's new Installer leads you through the installation process, and it's easier than ever before to see exactly what is being installed. However, there is still no way to prevent the

Installer from cluttering your hard drive with drivers and modem scripts that you don't want or need. Also new to Mac OS 7.6 is a revamped Extensions Manager, which adds several welcome features, including the ability to display information about control panels and extensions. But the new version still doesn't come close to replacing Casady & Greene's \$75 Conflict Catcher (408/484-9228, <http://www.casadyg.com>), which lets you troubleshoot start-up file conflicts. The system also sports handy new screen-capture

functions: ⌘-shift-4 captures any rectangular area that you select, and ⌘-shift-4-caps lock creates a PICT file of any window. You can also save the captured area or window to the Clipboard by holding down the control key.

A fun new feature is Talking Alerts, which lets you have the Mac speak aloud error messages and other dialog boxes that display for more than a user-defined time. This comes in handy if you get distracted from your Mac and something goes wrong.

For Your Convenience

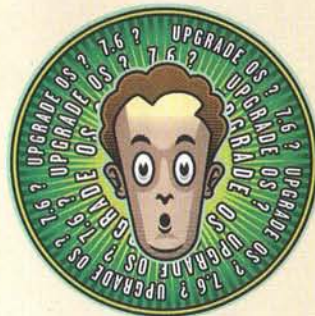
Many of the software components that ship with Mac OS 7.6—including OpenDoc, Cyberdog, QuickDraw 3D, and QuickDraw GX—are readily available online, either from Apple's Internet sites or on commercial services like America Online, for the price of your online time. Still, Mac OS 7.6 avoids the time and expense of downloading multi-megabyte files, and installation is much easier than doing several separate updates.

However, the version of Open Transport that comes with Mac OS 7.6 isn't the latest: version 1.1.2 has been shipping since December, but Mac OS 7.6 comes with version 1.1.1. More important, Mac OS 7.6 comes with QuickDraw 3D 1.06, not the 1.5 version available since November.

When doing a custom installation of Mac OS 7.6, you

can specify that you want extra features such as OpenDoc and Cyberdog, but you must go through separate steps to add these components; if you do a standard installation, the extras are added along with the rest of the OS.

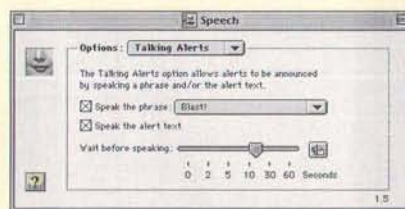
On the positive side, Mac OS 7.6 also offers a few components that are making their



first appearance in a general Macintosh OS release. For example, Apple's Remote Access client lets you dial in to AppleTalk networks, and version 8.1 of MacLink Plus from DataViz (203/268-0030, <http://www.dataviz.com>) provides a suite of file-translation tools. Also included in the package is version 1.2 of Apple's Internet Connection Kit.

Behind the Scenes

Not surprisingly, Mac OS 7.6 incorporates a slew of under-the-hood tweaks and bug-fixes. Virtual memory performance is said to be improved (the new system requires virtual memory if you have less than 16MB of physical RAM installed). Apple also claims that the system's improved Resource Manager makes the Mac faster and more responsive, although I wasn't able to verify the improvement with my pre-release copy. Mac OS 7.6 also ships with version 8.4.2 of Apple's LaserWriter driver,



Mac OS 7.6 will let your Mac speak to get your attention when an error message appears.



The new Extensions Manager displays extensive information about start-up files.

which is faster and more functional than previous versions. Other enhancements of interest to a minority of users include the ability to access volumes larger than 4GB on non-PCI systems and support for multiple processors.

Although Mac OS 7.6 is compatible with most 68030- and 68040-based Macs, it won't run on the Mac IIx, IIcx, or SE/30. And a bug in Apple's CFM-68K Runtime Enabler extension prevents certain software—including OpenDoc, Cyberdog, LaserWriter 8.4, and America Online 3.0—from running on 680X0 Macs. (At press time, Apple was working on a fix.)

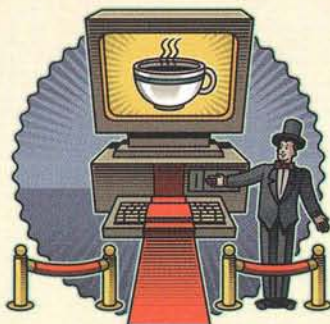
System 7.5 users can upgrade to Mac OS 7.6 for \$69 (CD version) or \$99 (floppy version) by providing proof of ownership. That's too bad: Apple could have garnered much-needed goodwill by selling Mac OS 7.6 for a nominal processing fee. If your Mac is functioning well, especially if you have a 680X0 machine, you're probably better off waiting for Tempo, and downloading System 7.5.5 and the newest versions of QuickDraw, OpenDoc, and Cyberdog from the Internet or America Online.

Apple Runs with Java Runtime

SOLID IMPLEMENTATION
WILL APPEAL TO USERS

by Charles Seiter

You've heard about it for months: Java, Java, Java. Now, Java is real, and it's on the Mac. Apple has made available Macintosh Java Runtime as a free download (<http://devtools.apple.com/mrj/>), and



with it you can run Java programs, no matter what platform they were originally written for, since Java is a platform-independent language that promises to let utilities and even whole suites of programs be written once and be used unmodified on PCs, Macs, and workstations.

Most Macintosh users are already familiar with a virtual machine—one is the software package that lets Power Macs run older programs of 680X0 instructions, another is the SoftWindows program that emulates a Windows PC on a Macintosh.

Java Apps Ready to Run

The new virtual machine in the Macintosh world is Macintosh Java Runtime, a rework of software elements licensed from the original Java source, Sun Microsystems, and the first Mac Java development system provider, Natural Intelligence.

As a first major step in the construction of Java building blocks for the Mac OS, it's simple from the user's point of view. Java applets now run as if they were Mac apps—you no longer need to run them within an Internet browser or other special program.

The key element is a system extension for the Mac OS (7.5.5 or later) that implements just-in-time Java applet compiling, a technique that translates portable Java code into Mac-specific instructions. Instead of waiting for a complete system overhaul, Apple

has realized it can significantly update the Mac's position in the Web world with some components that are ready to go immediately, such as this Java runtime software.

Apple has also announced, as another immediate system detail, new Java-based OpenDoc parts, perhaps the last best hope for OpenDoc to have a real commercial impact (see *NetSmart*, *Macworld*, March 1997).

In practice, Macintosh users have been able to run Java applets in Netscape Navigator 3.01, but the Navigator virtual machine hasn't won awards for either speed or stability. The Macintosh Java Runtime module, however, is fairly advanced—Apple's in-house Java team has had a year to tinker with the details of two implementations of Java Runtime software. It runs applets three to eight times as fast, depending on content details, as Navigator does (which I measured with a test suite of graphics-oriented applets developed in Symantec Visual Café and parts of the Sun applet pack in the Software Developer's Kit from Java).

Tools for Java Developers

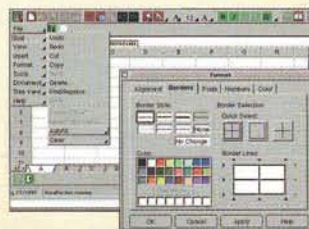
For developers, the Macintosh Java Runtime toolkit provides a set of applets (which can be edited in SimpleText) that amount to a fairly complete tutorial in simple applet development. Beyond this, a downloadable Java Software Development Kit is available that contains not just code libraries but code for sample applet viewers, both PowerPC and 680X0 versions, built for use with the Metrowerks development environment.

Not quite all Macintosh users are invited into the Java cafe: 680X0 in the developer's toolkit means 68030 or 68040. There are no plans at

Apple to make provisions for running applets on older 68000 or 68020 systems. In Apple's grand plan to position the Mac as the obvious first choice for the Web, there isn't much argument for making the old models try to compete as Internet workhorses with new, low-cost 160MHz 604e systems.

Java on Tap

Now that Java is on the Mac, you might wonder where to get Java programs. In 1996, the majority of the Java applets available from collection sites (such as <http://www.gamelan.com> and <http://www.partbank.com>) could have been characterized as "Web-site special effects": animations, scrolling banners, fades/dissolves, and other visuals.



Corel's Office for Java suite, which includes old Windows standbys like the Quattro Pro spreadsheet (shown here), has not yet been ported to the Mac. But the Java version runs on the Mac as is.

But in 1997, a larger number of small text editors, simple spreadsheet-like modules, data-entry forms, database links, and other real-office software elements have started to appear, and these are going to be integrated rapidly into more sophisticated applications that fulfill much of the original aim of OpenDoc, with the advantage that Java-based applications will run on all common platforms, not just the Mac. Examples include Corel's Office for Java (<http://officeforjava.corel.com>) and Digital Harbor's Wav (<http://www.dharbor.com/wav/>).

Sneak
PEEK

SiteWeaver: Nice Design but a Little Threadbare

BY GEOFF DUNCAN

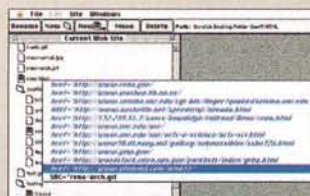
Today, HTML editors and Web-site-management programs show a distressing tendency to bloat, offering a vast array of features, but often at the expense of elegance, performance, and common sense. So I was excited to learn about SiteWeaver from Miracle Software (315/265-0930, <http://www.miracleinc.com>), maker of the popular HTML editor World Wide Web Weaver (see *Reviews*, March 1997).

SiteWeaver operates from a simple premise: you point it at a folder containing your Web site, and it builds an outline of the site's HTML files, images, CGIs, and more. From SiteWeaver's outline you can edit files; check links; rename, move, or delete items; and create new files and directories. SiteWeaver quickly identifies files that contain invalid links to other files on your site, generates useful reports of your site's links and "dead files" that no other item refers to, and offers pop-up menus of links in your files. It's also easy to move files (and entire directories) to new locations in your Web site. Simply drag to the new location, and SiteWeaver zips through your site, updating all links and references.

A Little Too Lean However, SiteWeaver falls short in many, often obvious areas of interface and functionality. The outline can't sort or expand and collapse directories, making it difficult to work with large groups of files; and it won't let you select multiple items, so you have to move the files in a directory one at a time. Furthermore, the outline doesn't display any file information (such as size, creator, date, or even an icon), which makes double-clicking an adventure if you built your site with various authoring tools. You can edit all HTML files using World Wide Web Weaver, but not with other editors like Claris Home Page or BBEdit; and you can only preview pages in Netscape Navigator.

Not So Fast All this might be forgivable if SiteWeaver had a low overhead and was blindingly fast—but that's not always the case. There's a RAM-hungry option to cache Web-site data for faster access, but SiteWeaver can still be annoying to use with large sites or over a network, particularly since SiteWeaver reprocesses the entire site every time you switch back to it.

It's likely that Miracle Software will clean up SiteWeaver before its release, since many of these shortcomings are not uncommon in early betas. SiteWeaver could become a svelte, utilitarian tool; I hope it gets the chance.



SiteWeaver can display a pop-up of an HTML file's links: links in red are broken, links in blue can't be checked (usually because they're to external sites), and links in black are fine.

storage

New Storage Interfaces to Merge

AARON DRIVES MAY BE READY BY LATE 1998

by Howard Baldwin

Facing the possibility of competing serial storage interfaces—one known for its reliability and the other for its speed—executives from IBM, Seagate, and Adaptec have called a truce and plan to merge the two specifications by the end of this year.

Serial storage architecture (SSA) is promoted primarily by IBM (914/642-3000, <http://www.almaden.ibm.com/storage>) and Pathlight Technology (607/266-4000, <http://www.pathlight.com>).

FibreChannel Arbitrated Loop (FCAL) is promoted by Seagate (408/438-6550, <http://www.seagate.com>), Quantum (408/894-4000, <http://www.quantum.com>), and most other storage vendors.

Although it was initially reported last fall that the merged serial storage specification would be called FibreChannel Enhanced Loop (FCEL), protests from the SSA engineers led the ANSI standards committee to temporarily adopt the benign but meaningless name Aaron for the technology.

Speed Confusion SSA proponents claim speeds of up to 80MB per second, while FCAL proponents confusingly claim speeds of up to 1 gigabit per second (which roughly translates to 125 MBps). Both architectures are designed to work best in networks with multiple drives,

such as RAID or digital-video applications. This is because SSA can read from multiple disks simultaneously, while FCAL offers a faster signal rate across the cable.

Hank Watson, president of Pathlight Technology, which manufactures SSA controllers, says that the ANSI committee is striving to make sure that drives using current specifications will be compatible with the future merged specification. However, if you want to take full advantage of the specification's speed improvements, you will need to purchase an Aaron-compatible controller.

Don't Hold Your Breath Drives based on the new specification will not be available until late in 1999, estimates Grant Saviers, presi-



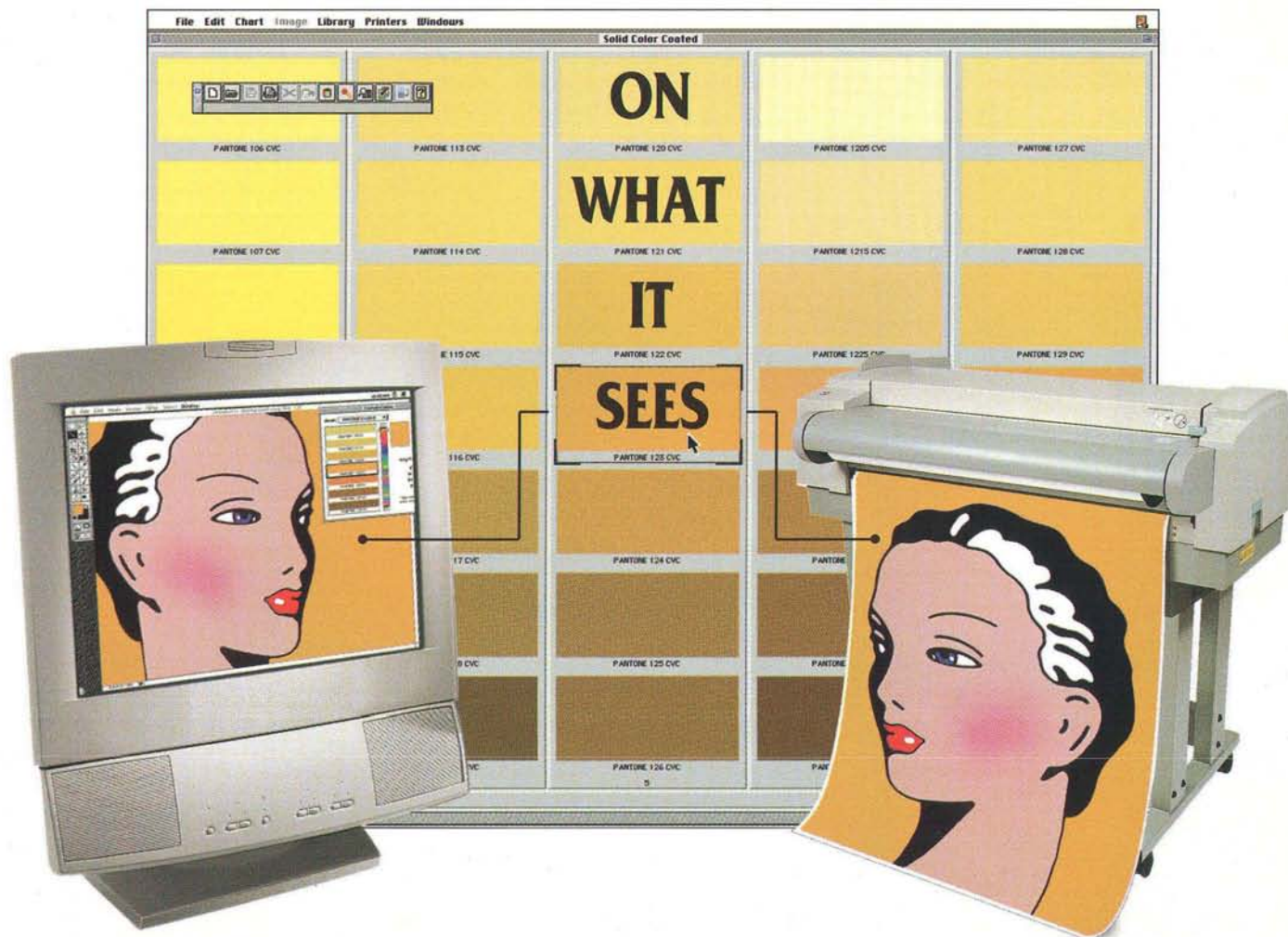
dent of Adaptec (408/945-8600, <http://www.adaptec.com>), another controller manufacturer. He adds that on the Macintosh, the technology will likely show up in server-based multimedia applications such as video servers.

IBM has been shipping SSA drives since mid-1996, primarily in its Unix-based servers. La Cie (503/520-9000, <http://www.lacie.com>) and Microtech (203/468-6223, <http://www.microtech.com>) have been shipping SSA drives in video-specific servers since last fall.

Seagate began shipping its first FibreChannel-based drives, the Cheetah line, late last year.

Color Matching Software from Pantone

HOW THE WORLD AGREES



Want consistent color in Photoshop, Illustrator and Quark?

New PANTONE ColorDrive® with Web Tools gets your colors right—across all your desktop and Internet publishing applications. Eliminate the headache of “tweaking” colors for different programs and output devices. Choose PANTONE ColorDrive for accurate, consistent color no matter where you publish. Available for Macintosh and Windows. For more information call 888-PANTONE or visit us on the web at www.pantone.com.

PANTONE®

Color Printer: Tektronix Phaser® 600. Monitor: AppleVision 1710AV. Adobe Illustrator and Adobe Photoshop are trademarks of Adobe Systems, Inc. Quark and QuarkXPress are registered trademarks of Quark, Inc. All trademarks used herein are the property of Pantone, Inc., or other companies. Process color reproduction may not match PANTONE®-identified solid color standards. Refer to current PANTONE Color Publications for accurate color. © Pantone, Inc., 1997. Illustration by Michael Schwab.

Circle 15 on reader service card

Special REPORT

A Third Act for Acrobat

ADOBE'S PORTABLE-DOCUMENT TECHNOLOGY ENJOYS MIXED SUCCESS

Adobe's (408/536-6000, <http://www.adobe.com>) Acrobat technology is the closest we've come to a standard format for portable documents. In this special report, *Macworld* examines Acrobat's strengths and weaknesses, while offering a look at the many Acrobat add-on products now available.

Plugging In to Acrobat

by Cathy Abes

Along with the recent release of Adobe Acrobat 3.0 has come an army of third-party plug-ins that extend its capabilities while keeping the dominant portable-document program ahead of its few remaining competitors.



- DigiDox's (616/954-9500, <http://www.digidox.com>) DigiDozen consists of 12 Acrobat 3.0 plug-ins that include DigiTools, a set of editing tools; TickTOC, which creates bookmarks and hypertext links for table-of-contents entries; Scraper Personal Edition, which corrects recognition errors in PDF pages; and MultiDest, which assigns multiple destinations to a hypertext link.

Due in March, DigiDozen retails for \$169, and is bundled with a single-license

copy of Acrobat 3.0 for \$295.

- Luminous Technology (206/689-6700, <http://www.luminous.com>) has added Acrobat 3.0 support to Luminous OPEN 1.1, the company's workflow-automation software for prepress operations. Acrobat support allows OPEN to automate production of PDF files for online publishing and printing.

Users can automate a variety of repetitive tasks, such as converting PostScript documents into PDF files and logging them into OPEN-aware databases, preparing PostScript files for raster image processing, and optimizing PDF files dropped into a hot folder.

Due by April, Luminous OPEN 1.1 will cost \$795. Due later, Luminous OPEN Network 1.1 will cost \$4495.

- Ivy International Communications (801/226-5555, <http://www.ivyintl.com>) will incorporate Acrobat 3.0 into Ivy Binder, software that allows online and CD-ROM publishers to organize information for easy search and retrieval and to update previously released data.

- Visioneer's (510/608-0300, <http://www.visioneer.com>) PaperPort Deluxe software provides a PaperPort Ready Link to Acrobat 3.0, which will enable users to convert scanned documents into PDF files or create a PDF file that

contains an image of the scanned page, making any recognized text on the page searchable—even if it's hidden behind the image. It is expected to ship in early February for an estimated street price of \$80.

- CoreDossier System2 from Electronic Submission Publishing Systems (215/654-9122, <http://www.esps.com>) now has integrated support for Acrobat 3.0. The software enables producers of large documents for regulatory agencies to design, manage, and publish their data over intranets. CoreDossier runs on Windows NT servers but supports Mac clients for document authoring and viewing.

- VerTec Solutions (910/855-9555, <http://www.vertec.com>) plans to release software tentatively titled PopHelp that provides balloon help for users of Acrobat forms. It can also be used to define an action through Acrobat's hyperlinks function. It's expected to ship by mid-February and retail for \$14.95 for Power Mac only.

Acrobat Climbs Higher on the Web

by Stephen Beale

Acrobat has always been a mixed blessing for users whose lives revolve around the World Wide Web. For content creators, Acrobat has provided one of the easiest ways to convert graphically rich documents for inclusion on the Web. But for Web

clients, Acrobat has been counterintuitive. Instead of simply viewing Acrobat PDF documents on the Web, you had to download them, then run Acrobat Reader to actually see them.

A Seamless Process? Acrobat 3.0, finally released in late fall, was supposed to address this problem by allowing you to view PDF documents directly from your browser. This is accomplished through a Netscape PDF Viewer plug-in that comes with the free copy of Acrobat Reader.

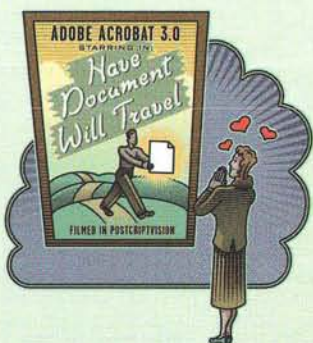
Unfortunately, viewing PDF files, even with Acrobat 3.0, is not a seamless process. Instead of waiting for the PDF file to download, you wait for a viewable document to download, after which the plug-in launches Acrobat Reader. It may happen faster than it did under Acrobat 2.1, but the experience hasn't changed all that much.

This means the Acrobat equation hasn't changed much either. If you want an easy way to place existing documents on the Web, Acrobat is a good choice, especially with the new features in 3.0, which include page-by-page downloading and embeddable URLs. However, if you want to maximize the number of users who view that document, consider an alternative that doesn't require plug-ins—such as straight HTML.

Good News for Print Ironically, while Acrobat's Web capabilities have gotten almost all the attention, Acrobat 3.0 may prove to offer its biggest benefits for print rather than online applications.

PDF is based on the same imaging engine used in Adobe's PostScript language. While PostScript packages this engine in a programming language, PDF packages it in an object-oriented structure designed for interaction. As it turns out, this object-oriented structure provides some advantages over PostScript as a print production technology.

PDF treats each page as a separate entity, while PostScript handles each page as part of a larger data stream that must be processed in sequence. As a result, PDF lends itself to distributed processing operations, in which each page in a prepress workflow is processed on a separate RIP. In addition, the process of converting PostScript files to PDF removes many of the conditions that lead to PostScript errors.



Acrobat 3.0 includes several print-oriented enhancements, such as halftone screens and new color spaces, that place it on par with PostScript as a prepress imaging technology. In Adobe's Supra printing architecture, which it announced last year, documents can be freely converted between PostScript and PDF, depending on the needs of a particular job.

It seems that Adobe can't get away from its origins in print production. For all the new Web-oriented features in Acrobat 3.0, the biggest benefits may still be reserved for those who place ink on paper.

graphics

Extending Photoshop's Reach

PLUG-INS ADD NEW CAPABILITIES

by Stephen Beale

One of Adobe Photoshop's many strengths is its plug-in architecture, which has spawned a cottage industry of vendors offering products that extend the image editor's capabilities. Recently we've seen a new wave of Photoshop plug-ins, from established vendors as well as some newcomers.

Eye Candy One of the most popular plug-in collections, The Black Box from Alien Skin Software (919/832-4124, <http://www.alienskin.com>), has undergone a face-lift and a name change. Now called Eye Candy 3.0, it adds 11 new filters to the original 10, including Fire, Smoke, Weave, Water Drops, Squint, and Fur. Eye Candy's new 3-D interface—those who prefer can switch back to the old one—provides zoomable and resizable previews, autoprereviewing, and a thumbnail navigational tool. The software costs \$199; upgrades are \$49.

Test Strip This \$149 plug-in comes from Vivid Details (805/646-0217, <http://www.vividetails.com>), a company best known for its stock-photo packages. It provides powerful color-correction functions using a relatively simple interface; the company describes it as "Photoshop variations on steroids." Test Strip separates your image into multiple strips, showing

incremental variations in color balance, exposure, saturation, and other elements. You can also print images on a color-proofing device, along with labels identifying the settings for each strip. In addition to providing greater precision than the Photoshop Variations function, Test Strip shows a full-screen, full-resolution version of the image.

Vertigo 3D Dizzy You can add 3-D models to your artwork using this \$88 Photoshop plug-in from Vertigo 3D (604/684-2113, <http://www.vertigo3d.com>), which the company may also release as a stand-alone application with drag-and-drop capabilities. The plug-in brings up a preview window through which you can import models in Apple's QuickDraw 3D format. You can change a model's size, orientation, and position, as well as add a variety of texture maps and lighting and shadow effects. The software ships with 400 3DMF models from Vertigo and ViewPoint DataLabs.

PhotoCell, PhotoSpot ct PhotoCell is a \$59 plug-in from Second Glance Software (360/692-3694, <http://www.secondglance.com>) that converts Photoshop layers into QuickTime movies or animated GIFs. The program's filmstrip interface offers control over frame rate, transparency, and looping options. PhotoSpot ct lets you create continuous-tone separations using spot-color inks instead of CMYK process colors. You can choose any color that dominates part of the image from any color-matching system supported by Photoshop, including Pantone. The list price is \$595.

MC-P/CoCo, Channel 24 These Photoshop color-correction plug-ins were developed by Visu Technologies, but are now distributed exclu-

sively by Pantone (201/935-5500, <http://www.pantone.com>). MC-P/CoCo uses algorithms rather than lookup tables to perform color correction. You can select a single color—such as the red in a sports car—and modify it without changing other colors in the image. You can also simulate the effects of paper color and accommodate non-CMYK ink setups, such as Pantone's six-color Hexachrome technology. And you can independently correct up to 16 color channels in each image. For \$1195 you also get Channel 24, which can create DCS 2.0 files with up to 24 separate channels.

Primatte 5-100 This \$799 utility from PhoTron (408/261-3613, <http://www.photron.com>) helps create seamless blends between background and foreground objects in composited images. Its Auto Setup Mode can handle much of the cleanup job, removing edge spill from subjects shot against any solid-color background; a manual mode allows further cleanup.

MetaTools on Its Own

While these vendors seek riches in the plug-in market, one of the most successful plug-in developers, MetaTools (805/566-6200, <http://www.metatools.com>), is moving in the other direction: toward stand-alone graphics products. The company is preparing to release Soap, a \$49 consumer-level photo retouching program that could be as big a hit as Kai's PowerGoo. Soap uses a new interface metaphor in which you access each section of a program through a door. According to MetaTools' technology chief Kai Krause, most of the company's product line will be rewritten to conform to the new interface, making it easy to exchange an image among different MetaTools programs.

between now

and **May 31**

there's a color called

REBATE.

Get a \$1,000 Rebate on a Color Laser Beam Printer 360PS.

CANON CONNECTS your office to a spectacular array of colors at a spectacularly low price. Buy a Color Laser Beam Printer 360PS until May 31, 1997 and you'll get a rebate certificate worth \$1,000*.

And if that's not enough to brighten your day, while supplies last, you get a **32MB printer for the suggested retail price of \$9,495 — what you'd expect to pay for 16MBs!**

It comes with a built-in Fiery™ driven controller for speed, plus you get 600 dpi of high-resolution text and graphics at a fast 3 pages per minute. And it's all part of a system that easily connects with your current environment, from a name that's easily recognized as the leader in color laser technology.

To get your rebate certificate, visit your nearest Canon authorized dealer today or call **1-800-OK-CANON** ext. 0360, *anytime*. Or connect with us on the Web at <http://www.usa.canon.com>.

* \$1,000 manufacturer's rebate available with required proof of purchase.



Canon Laser Color. Its only competition is reality.

online

Make the Net Come to You

NEW WEB SERVICES
AUTOMATE DELIVERY OF
CUSTOMIZED DATA

by Tova Fliegel

Sit back, enjoy that second cup of coffee, and wait for the news, weather report, and even astrology forecasts to come to you. You don't need to remember a specific URL, have one bookmarked, or go through the wait-and-see process of initiating an FTP session. America Online (703/448-8700, <http://www.aol.com>), BackWeb Technologies (408/437-0200, <http://www.backweb.com>), and PointCast (408/253-0894, <http://www.pointcast.com>) are inspiring a new way to surf as they deliver Internet "push" technology with Macintosh versions of AOL's Driveway, and the eponymous BackWeb and PointCast.

AOL in the Driver's Seat AOL's Driveway delivers information to users offline at preset times determined by either the user or AOL's default controls. The service delivers e-mail messages; customized versions of Top News; the AOL Guide, daily updates from 25 subject areas on AOL and the Internet; customized updates of favorite Web sites using FirstFloor's Smart Bookmarks software; and daily features from 10 of AOL's content providers, including its sports, news, and entertainment partners. Users determine the number of days they want to keep information on their hard drives to prevent overload.

AOL plans to make components of Driveway, in particular the AOL Guide, available to nonmembers in the future. AOL says it will release the Macintosh beta of Driveway in March and ship the final product by the end of June. Driveway will be free to members; pricing for nonmembers has not been determined.

Back to the Web BackWeb sends information through specific channels, to which you subscribe. The information appears in a pop-up window (called an InfoFlash) over your application. You can ignore the window and it will eventually go away, or you can click on it to display the full contents, expanding it into an InfoPak. InfoPaks can include text, graphics, and QuickTime and QuickTime VR movies, and you can display them as a screen saver or desktop wallpaper.

Set to ship as a Mac beta by the end of March, the BackWeb client software will be free, but the Channel Server, which can deliver up to 25,000 InfoPaks per month and requires a Sun or Intel Solaris machine, costs \$10,500. General Motors, The Weather Channel, and InfoSeek are among the companies with BackWeb channel servers. By year's end, The Wall Street Journal Interactive Edition and SportsLine USA will be added to the list.

A Cast of Thousands PointCast has been available on the PC for several months; the company says it will introduce version 1.0 of its Macintosh client by April. PointCast replaces your flying toasters with news, weather, and the latest from Wall Street, posting this information from its PointCast Network as a screen saver on your desktop. The PointCast client software is free, while the Windows NT server software, which can support about 500 clients, costs \$995.

printing

Color Lasers on the Cheap?

FORTHCOMING ENGINES,
CONTROLLERS MAY
BREAK \$3000 BARRIER

by Stephen Beale

Get ready for a new round of price wars in the market for color laser printers. At present, the typical color laser will set you back about \$6000, with the cheapest models going for about \$5000. But vendors anticipate that forthcoming print engines and controllers—expected this year—could drive prices as low as \$3000 for continuous-tone output and \$2500 for halftone output. Some believe this timetable is overoptimistic, but there is little doubt that color laser prices will eventually plummet.

Narrowing the Gap

The \$2500 price point is significant because it considerably narrows the gap between color and monochrome laser technologies. At the low end of the printer market, monochrome lasers are already taking a beating from color ink-jet printers. Given the option of buying a color laser for just \$1000 to \$1500 more than a monochrome laser, many customers will go for color.

One company singing the praises of low-cost color lasers is Peerless Technology (310/536-0908, <http://www.peerless.com>), a developer of print controller components for such companies as Canon, Hewlett-Packard, Konica,

Kyocera, Olympus, Riso, Tally, and Texas Instruments.

Peerless has developed a suite of hardware and software technologies designed to enable low-cost color printing. These include Memory Reduction Technology, software that reduces the printer's memory requirements; and the QuickPrint 1800, a coprocessor that incorporates color graphics acceleration, compression-decompression, and other controller functions.

Too Optimistic? David Fournier, vice president of sales for Peerless, says this low-cost controller technology, in combination with low-cost engines he expects to see later this year, will drive color laser prices to the magic \$2500 threshold. Executives with Tektronix and QMS—two major suppliers of color laser printers—agree that such a scenario is likely, while adding that the cheaper lasers will probably require technology compromises, such as slower print speed.



However, Charles LeCompte, a printer industry analyst who publishes the *Hard Copy Observer* newsletter, believes that Fournier is too optimistic in his price forecasting. "It's a safe assumption that prices will come down," he says. "What's in doubt is the time frame." In 1997, he says, prices won't fall much below \$5000.

"WHAT THE NEW OS STRATEGY MEANS TO YOU"

continued from page 29

included coding changes on which current programs would stumble.

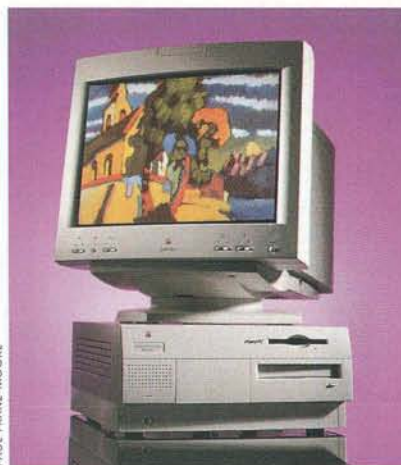
Mac Compatibility Macs shipping in 1997 and later—from Apple and the clone makers—will run Rhapsody and the three versions of System 7 being developed in the next two years (Tempo, Allegro, and Sonata).

Current compatible systems include the existing Apple Power Macintosh line—the 5260, 5400, 6400, 7200, 7500, 7600, 8500, and 9500; the Apple Performa 6360 and 6400; the new Power Macs—the 4400, 7300, 8600, and 9600; the Apple PowerBook 1400 and the new 3400 (for more details on the new notebooks and Power Macs, see "PowerBook with a Punch" and "More Mac for Your

Money" elsewhere in this issue); the DayStar Digital Genesis MP series; the Motorola StarMax 3000 and 4000 series; the Power Computing PowerBase, PowerCenter, PowerTower, and PowerTower Pro series; the Umax SuperMac C500, C600, J700, and S900 series; and systems from other companies based on the StarMax design (this currently includes APS Technologies' MPower line and PowerTools' Infiniti line).

Apple is determining whether it will be able to support earlier systems, such as the Apple Power Mac 6100, 7100, and 8100; the Apple Performa 5000 and 6000 series; the Apple PowerBook 5300; the Power Computing Power and PowerWave series; and the Radius 81/110 and System 100. It is too soon to promise that these systems will run Rhapsody.

Multiprocessing Macs



PAUL FRANZ-MOORE

Apple says that all Macs being sold today—including systems from OS licensees—will be able to run the new Rhapsody OS.

The Power Mac 7300 is shown here.

will run using the current DayStar asymmetrical multiprocessing software under the Mac OS compatibility environment, and using true symmetrical multiprocessing under OpenStep.

Like Copland, Rhapsody will not run on 680X0-based Mac systems.

Key Technologies Apple has said it will port most key Mac OS technologies to OpenStep, including the following: QuickTime, QuickTime VR, QuickTime IC, QuickDraw 3D, ColorSync, OpenDoc, AppleScript, Apple events, HotSauce, Java, and FutureShare (the new version of AppleShare expected to ship later this year). Any technology that runs under System 7 will run in Rhapsody's Mac OS compatibility environment, Apple says.

Decisions to Be Made

Among the technology decisions Apple has yet to make are the following:

- Whether the Mac OS compatibility environment will run in its own window or invisibly within Rhapsody (only the menus would change as you switched from an OpenStep program to a Mac OS program). The odds

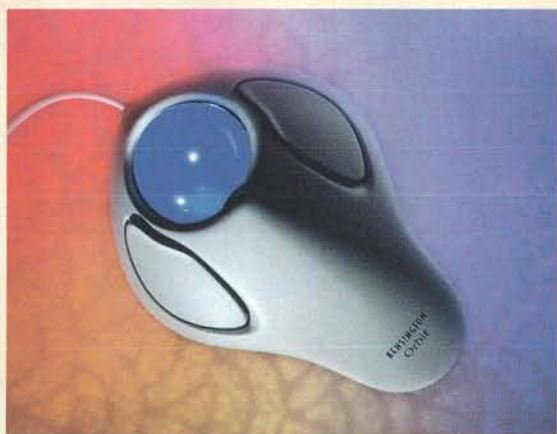
are better for a separate window, at least in the first full version of Rhapsody.

- How to handle the graphics engine for OpenStep. Apple wants to port at least parts of QuickDraw GX to the OpenStep engine, which is based on Adobe Systems' Display PostScript.

- Contrary to initial reports, Apple has not committed to porting its Open Transport networking architecture to OpenStep (Open Transport would still run in the Mac OS compatibility environment). OpenStep offers similar services, so Apple may adopt those and perhaps try to provide a translator so Open Transport-aware programs would work with little or no modification with the OpenStep networking architecture.

- Apple has not said how it will support its MacinTalk text-to-speech technology and WorldScript multilingual software; OpenStep uses the Unicode multilingual system that Copland was also supposed to adopt.

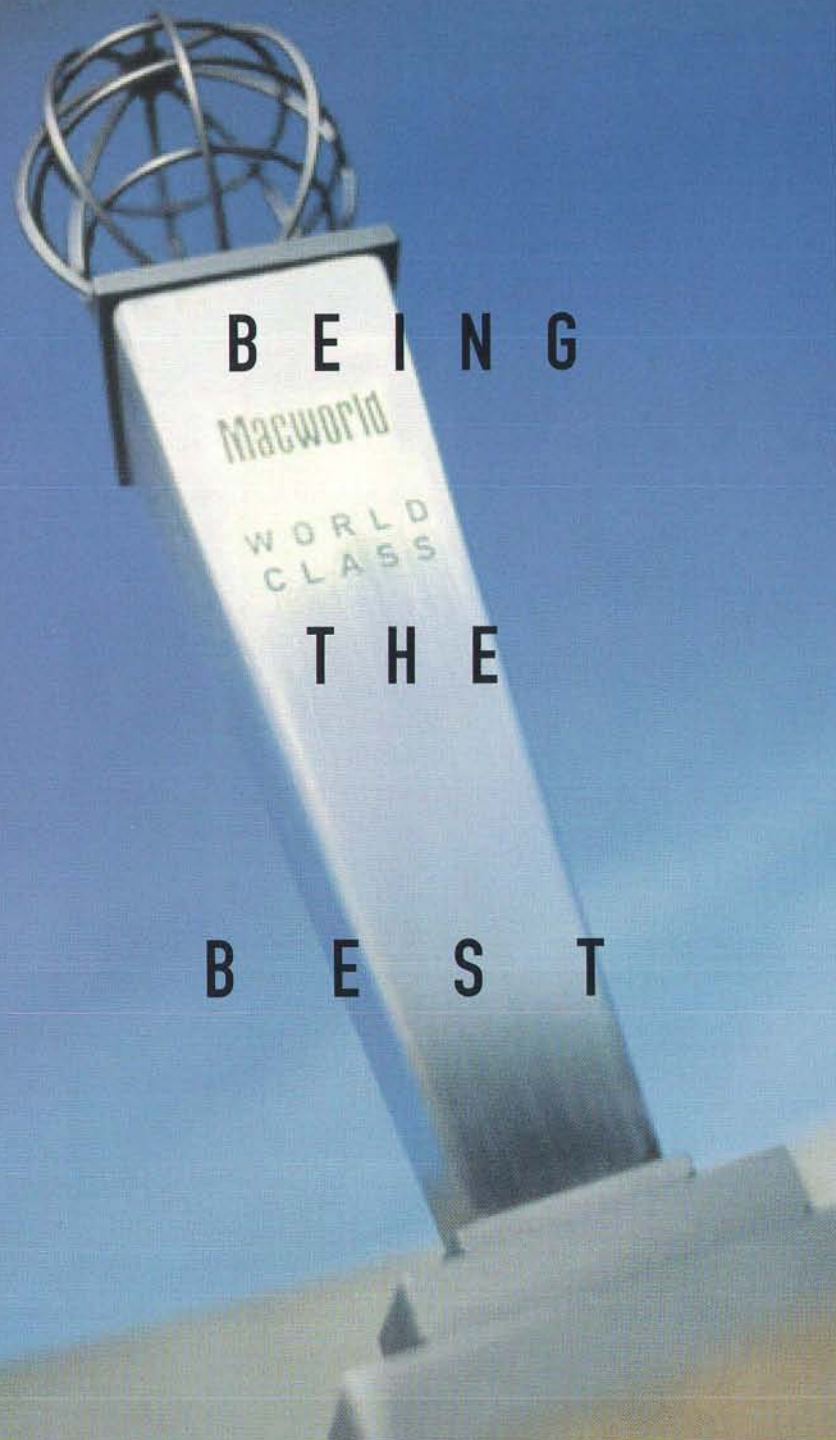
- Surprisingly, Apple hasn't decided whether to call Rhapsody Mac OS. With two operating systems from Apple running simultaneously under the Rhapsody plan—the Mac OS based on System 7 (which Apple recently renamed Mac OS 7) and a new version of OpenStep—Apple has to decide whether the name Mac OS would remind people too much of the old Mac OS 7 or become quickly identified with the new, OpenStep OS. My bet is that the Mac OS, or at least Apple OS, name is here for a long time.



SUZANNE ROJAY

A Trackball in Orbit

New from the mouse-meisters at Kensington (415/572-2700, <http://www.kensington.com>) is the Orbit Trackball, which features a translucent blue ball that's smaller than most other trackballs for easier fingertip control. You also get MouseWorks software, which lets you assign tasks to the trackball's buttons. List price is \$70.—STEPHEN BEALE



CONGRATULATIONS TO THE COMPANIES
WHOSE PRODUCTS HAVE BEEN SELECTED
AS WORLD CLASS AWARD WINNERS

Adobe Systems
Andromeda Software
Apple Computer
Asante Technologies
ATI Technologies
Bare Bones Software
Berkeley Systems
Big Island Communications
Casady & Greene
CE Software
Claris
Dantz Development
Data Description
DeltaPoint Software
Epson
Equilibrium
Exponential Technology
Extensis
IBM / Motorola
Iomega
Macromedia
Mark of the Unicorn
Metrowerks
Microsoft
Polaroid
Power Computing
Progressive Networks
Quark
Quarterdeck
Radius
Specular International
Tektronix
Umax Technologies
Visioneer



THE MACWORLD 1997 WORLD CLASS AWARD.
IT'S ALL ABOUT BEING THE BEST.

Selected by the Editors of Macworld magazine—
the Macworld World Class Award honors the
best products in the Macintosh market for
outstanding merit and satisfaction.



Macworld
THE ESSENTIAL MACINTOSH® RESOURCE

Close the Photoshop gap

This "metamorphosis" effect required the careful blending of two images. The artist first applied a layer of fire over a layer of hair. Then, the UltraPen's pressure-sensitive eraser was used to progressively remove portions of the fire layer to reveal the hair below. The eraser's pressure-sensitivity allowed the fine control necessary for this technique.



See how the sky shows through the water? The artist pressed lightly to bring in a transparent clone and hard for a fully opaque clone, without having to break concentration or work flow.



Photoshop's *smudge* tool was used to create a smooth transition from water to garment. Wacom's pressure-sensitive UltraPen® lets the artist selectively apply more or less of the *smudge* effect simply by pressing hard or soft, on the fly, without going back and forth between the art and the dialog box.

Artwork created with a Wacom tablet by Steve Belcher, digital artist & Marcus Swanson, photographer

Fire up Photoshop and you'll immediately see something beautiful, tantalizing and extraordinary—eleven pressure-sensitive Photoshop tools that you simply can't use to full advantage unless you've got a Wacom graphics tablet. The instant you install a Wacom, all eleven tools are automatically enabled, instantly alive. All waiting at your fingertips in the exclusive Wacom UltraPen® with its pressure-sensitive, batteryless technology. Customer-tested and refined for over a decade, it's used by more than 100,000 Photoshop artists the world over.

Close the gap now. Get yourself a Wacom and really make Photoshop fly. From dodge and burn to sponge and smudge, Wacom will take you far beyond the limits of a mouse. All the way to the outer reaches of your imagination.

Call or visit our web site for more Photoshop tips & tricks at www.wacom.com or 1-800-922-2585.



© 1997 Wacom Technology Corp. 501 DE Columbia Street Blvd. #501 Vancouver, WA 98661. Wacom and UltraPen are registered trademarks of Wacom Co., Ltd. All rights reserved. All other trademarks are property of their respective companies. Image © 1997 Belcher/Swanson

Circle 146 on reader service card

New Products

THE LATEST MACINTOSH RELEASES

COMMUNICATIONS

Bare Bones Client

BEdit, the text editor that launched a thousand Web pages, was just the beginning: Bare Bones Software (617/676-0650, <http://www.barebones.com>) has an Internet e-mail client, code-named Bluto, due in March. The \$49 POP3/SMTP client features a database that allows users to quickly organize, search, retrieve, and sort stored messages. Other functions include text transformations, powerful search-and-replace features, a spelling checker, and mail filters.

DISPLAY

Lightweight Projectors

Business presenters on the go should check out the latest crop of lightweight LCD projectors.

- The \$4995 PolaView 10 from Polaroid (716/256-4436, <http://www.polaroid.com>) is just under 10 pounds and supports resolutions up to 640 by 480 pixels. Brightness is 200 ANSI lumens.

- The \$6995 VP800 from Lightware (503/641-7873, <http://www.lightware.com>) weighs just under 10 pounds and offers 800-by-600-pixel SVGA resolution and the ability to project a 40- to 200-inch-diagonal image.



LiteGo 320

- The \$5999 LiteGo 320 from InFocus Systems (503/685-8888, <http://www.infocus.com>) weighs 9 pounds and offers 800-by-600-pixel resolution at 200 ANSI lumens.

- The \$7995 NoteVision XG-NV1U from Sharp Electronics (201/529-8731, <http://www.sharp-usa.com>) weighs 15.4 pounds and displays up to 832 by 624 pixels at 400 ANSI lumens.

GRAPHICS

Flashy Picture Factory

Eastman Kodak's (716/724-4000, <http://www.kodak.com>) PixFactory is a suite of six modules based on the FlashPix graphics format (see "FlashPix Format Gains Momentum," *News, Macworld*, December 1996).

- The \$499 Media Converter converts TIFF, JPEG, and other image formats into FlashPix.

- The \$1995 Media Cataloger embeds FlashPix images with non-image data, such as the date, time, and photographer's name, making it easier to search for images.

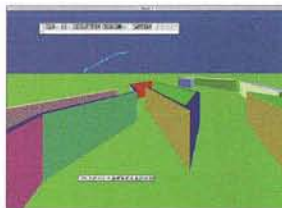
- The \$1995 Media Streamer for Solarise and the \$995 Media Streamer for Windows NT are Web-server plug-ins that let users share low-resolution versions of FlashPix images across networks and over the Internet, while maintaining links to the high-res originals.

- The \$9995 FlashPix DataBlade allows users of the Informix Universal Server to search for and retrieve FlashPix files. There's also a \$499 Media Viewer.

Get Virtual

The world-builders among us now have a tool for creating online virtual environments. ParaGraph's (408/364-7700, <http://www.paragraph.com>) Virtual Home Space Builder lets

those without VRML coding experience create 3-D worlds complying with the VRML 2.0 specification. A rendering engine provides a quick view of the 3-D environment under construction. The program ships with a library of textures, images, animations, sounds, and sample 3-D spaces. It is available as a \$30 download from the ParaGraph Web site or on CD-ROM for \$50.



Virtual Home Space Builder

INPUT DEVICES

A Clean Slate

New from CalComp (714/821-2000, <http://www.calcomp.com>) is the UltraSlate, a graphics tablet with a cordless, pressure-sensitive pen that requires no batteries. The \$165, 4-by-5-inch version is bundled with Fractal Design Dabbler software, and the \$340, 6-by-9-inch version comes with Live Picture SE.

MULTIMEDIA

Faster 3-D

Want to add some bounce to your 3-D graphics? Several vendors are offering new QuickDraw 3D accelerators, which boost performance in 3-D graphics applications that support Apple's Rave technology.

- The Xtreme-reZ3D, a \$999 card from Integrated Micro Solutions (408/369-8282, <http://www.integratedmicro.com>), uses a Twin-Turbo 128-3D graphics controller with 8MB of VRAM to speed up 2-D and 3-D graphics and QuickTime video. Integrated also offers the \$169 TurboTV card—a TV tuner and viewer with video-capture capabilities. The same PCI card works in both Macs and PCs.

- Radius (408/541-6100, <http://www.radius.com>) is shipping the

\$3399 Thunder 3D, which uses a 500TX Glint chip from 3D Labs. The board offers maximum display resolution of 1600 by 1200 or 1920 by 1080 pixels and supports the HDTV aspect ratio.

- The RenderPix hardware accelerator from Newer Technology (316/943-0222, <http://www.newertech.com>) comes in two versions: the \$2195 PCI/500, with 2MB of VRAM and 8MB of RAM, and the \$3645 PCI/502, with 8MB of VRAM and 32MB of RAM.

In the Cards

Everyone is marching to the Web these days, Allegiant Technologies (619/587-0500, <http://www.allegiant.com>) included. SuperCard 3.0 is an upgrade to its HyperTalk-based authoring tool that boasts Web delivery functions and a refined interface. A new Project Editor combines a project overview with screen-layout and -editing functions. Other features include a browser-emulation mode; new Tools and Color palettes; enhanced visual effects; continuous audio playback; and import of GIF, JPEG, BMP, and ART-compressed graphics. SuperCard 3.0 sells for \$329 (\$130 to schools).

Devious Effects

Want to create professional-quality special effects on a desktop budget? Scitex Digital Video (415/369-5111, <http://www.scitexdv.com>) has introduced the DveousFX video-effects card for MicroSphere, the company's digital-video-editing system. You get high-end tools, such as a wipe generator, luma and chroma keyers, and picture-correction controls, along with a variety of special effects. Due to ship by early March, a fully loaded version of the DveousFX will be priced at less than \$10,000.

NETWORKING

Shiva Dances into the Open

Shiva's (617/270-8300, <http://www.shiva.com>) LANRover, LANRover continues

New Products

Access Switch, and Netmodem/E product lines now support Apple's Open Transport/PPP extension. Both LANRover products let users dial in to their corporate networks and intranets remotely. Shiva also supports third-party PPP clients.

ONLINE

Noisy Java

It seems as if everyone's offering a new Web development program, but this one is different. Coda from RandomNoise (415/437-0321, <http://www.randomnoise.com>) is written entirely in Java. It lets you position and configure text and objects using such controls as sound, cell- and path-based animation, floating windows, drop shadows, and scrollable content areas. The program's Action palette lets you make objects interactive by choosing an action from a pull-down list. Due to ship in March, Coda will sell for \$350.

The Java Bazaar

You've set up your home page. Now how do you keep track of users visiting your Web site? Bazaar Analyzer Pro from Aquas (408/737-7122, <http://www.aquas.com>) is a Java-based Web monitoring and analysis tool that tracks the number and duration of hits, specific pages accessed, user demographics, disk usage, and bandwidth. Mac and AIX versions are expected to ship early this year for \$999.

More Surf for Your Dollar

Tired of fighting over who gets to surf the Web? Maybe it's time for Surf-Doubler from Vicom Technology (415/691-9520, <http://www.vicomtech.com>). This \$149 software package aimed at the consumer market allows users on two networked computers to simultaneously browse the Web through a single modem and Internet account. The software runs on a Macintosh, but the second machine can be a Mac or PC.

WebWhacker at the Forefront

It sounds like a way to take out your Internet frustrations, but WebWhacker 2.0 from ForeFront (713/961-1101, <http://www.ffg.com>) is nothing more than a \$70 browsing application that captures and downloads preselected content from the Web to your hard drive, letting you view it offline. It also monitors preselected sites to download new information as they are updated.

Extensis Freebie

You couldn't ask for a better price for the Mac-based CyberViewer Web utility from Extensis (503/274-2020, <http://www.extensis.com>): it's free. CyberViewer works with Netscape Navigator to maintain a visual history of visited Web sites. A floating palette displays each page you visit as a text listing or graphical thumbnail; double-clicking on the palette instantly returns you to a site. Download CyberViewer from <http://www.extensis.com/products/CyberViewer>.

PRODUCTIVITY

Forms to Go

Several vendors are moving us closer to the paperless office with these new forms packages.

- Caere (408/395-7000, <http://www.caere.com>) is shipping OmniForm for Macintosh, a \$199 OCR package that automatically converts text from paper forms into editable text for on-screen data entry. Scanned tables become minispreadsheets that are capable of performing simple calculations. The forms can be filled out in OmniForm Filler, a \$99 companion program.



OmniForm

- FormTyper for Macintosh, from Visioneer (510/608-0300, <http://www.visioneer.com>), is a \$19.95 forms-scanning add-on for the PaperPort Vx. It identifies blank spaces on the form, allowing users to tab from one field to the next.

- Shana's (403/433-3690, <http://www.shana.com>) Informed 2.0 forms-design program includes built-in routing lists; the ability to designate FTP servers as form-distribution centers; support for form attachments; Windows and Mac cross-platform functionality; and support for Oracle, Sybase, and ODBC-compliant databases. The \$295 package includes Informed Designer for creating forms, and one copy of Informed Filler for completing them. Informed Filler alone costs \$195.

A New Dimension

The 4th Dimension is the Internet, as far as ACI US (408/252-4444, <http://www.acius.com>) is concerned. Version 6, the long-awaited upgrade to the 4th Dimension relational database, converts forms to HTML on the fly, allowing users to enter, query, and modify data in their Web browsers. The upgrade also features hundreds of new commands, enhanced development tools, and a new debugger. The \$299 price tag includes five Internet connections.

PUBLISHING

Beyond Utility Status

The latest version of BeyondPress from AstroByte (303/861-4861, <http://www.astrobyte.com>) goes beyond its origins as a QuarkXPress-to-HTML conversion tool. Version 3.0 is billed as a Web authoring tool that preserves your XPress document's text formatting and layout, converting TIFF, PICT, and other formats into GIF, JPEG, and the new PNG format. It also imports QuickTime, Java, RealAudio, and Macromedia Shockwave files. When you export the document as a Web page, all files are automatically embedded into the HTML code.

SCIENCE/ENGINEERING

On the Map

The \$1195 ArcView 3.0, desktop-mapping and geographic-information-system (GIS) software from ESRI (909/793-2853, <http://www.esri.com>), has enhanced thematic mapping; customizable tool bars; new map-editing tools; improved color management, including standard geographical color coding; support for SQL queries through the ODBC standard; and plug-in support. Upgrades from 2.1 are \$375 for a limited time.



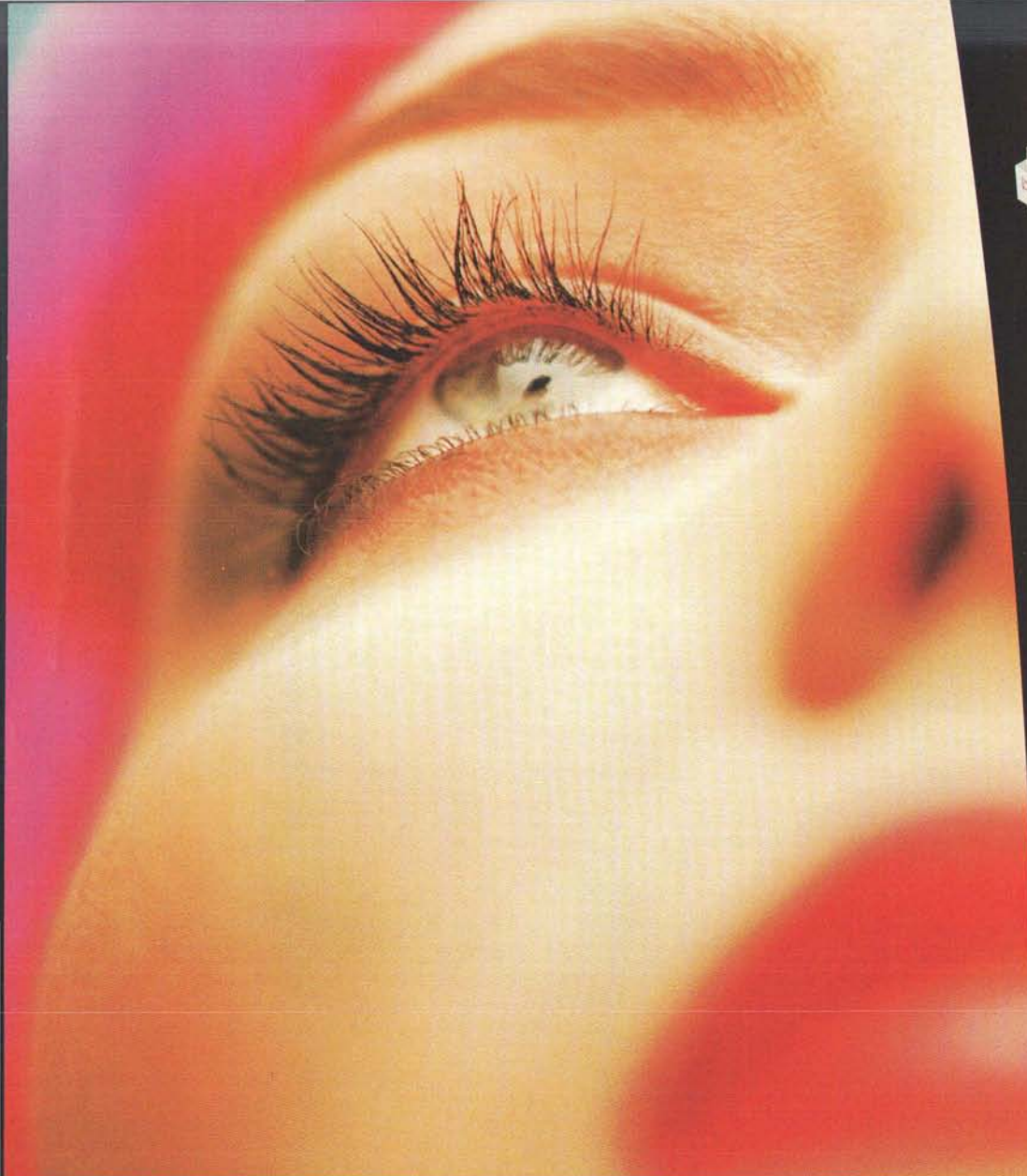
ArcView 3.0

STORAGE

Raiding the Desktop

Conley's (212/682-0100, <http://www.conley.com>) SoftRAID 1.5 is a \$300 software package that allows you to create and maintain single-disk and RAID volumes using an optimized native-PowerPC driver for fast drive performance. Other features include weighted striping; support for 16 disks per stripe; drag-and-drop creation of RAID 0, RAID 1, and Macintosh HFS volumes; the abilities to take over existing RAID volumes and create multiple HFS volumes on one disk; and Apple Guide online help.

VENDORS: TO HAVE YOUR PRODUCTS CONSIDERED FOR PUBLICATION IN NEW PRODUCTS, SEND A PRESS RELEASE WITH PRODUCT DESCRIPTION, PRICE, AVAILABILITY, AND CONTACT INFORMATION FOR READERS, PLUS OPTIONAL PHOTO OR SCREEN SHOT, TO NEW PRODUCTS EDITOR, MACWORLD, 501 SECOND ST., SAN FRANCISCO, CA 94107; NEW_PRODUCTS@MACWORLD.COM.



PowerLook 2000

FEATURES:

- 1000 x 2000 dpi optical resolution
- 36-bit color depth
- 3.3 Dmax from transparent originals
- Over 68 billion colors and shades of gray
- Scans multiple images quickly by batch mode
- Scans slides, transparencies and negatives
- Enclosed optical system for images free of dust and light contamination
- Comes with binuscan's® PhotoPerfect® software (value: \$2000)

TO SEE THE **POWER** of 2000 dpi,
JUST **LOOK** CLOSELY.



Presenting the affordable PowerLook 2000™ prepress-quality 36-bit color scanner from UMAX. At 2000 dpi, you suddenly have the ability to capture details like never before. Which makes the PowerLook 2000 ideal for enlargements. Plus, it comes with binuscan's® PhotoPerfect® automatic color correction and separation software. PhotoPerfect maximizes every ounce of PowerLook 2000's range and color. So you can be certain to get the most consistent, highest-quality scans—every time. Guaranteed. Look into the PowerLook 2000. And then look closely at the list price of \$4,395. No other scanner offers the time-saving productivity and high-end color control at such a low cost.

Call us for the Value Added Reseller nearest you, 1.800.546.8557.
Circle 45 on reader service card

UMAX®

<http://www.umax.com>

©1997 UMAX Technologies, Inc. UMAX is a registered trademark of UMAX Technologies, Inc. All other trademarks or registered trademarks are the property of their respective owners.

Reviews

Pilot

POCKET PDA IS SMALL,
SWIFT, AND SWEET

THE LONG-ANTICIPATED Electronic organizer from the Palm Computing division of U.S. Robotics has finally arrived, and the verdict is simple: it's terrific. A Pilot accompanied me through a month of meetings and Macworld Expo, and it quickly became as indispensable as my cell phone. I found it amazingly convenient to have fast access to my calendar and phone numbers when I was out of the office; when I returned, I could synchronize the data on the Pilot and my Macintosh with a push of a button. The Pilot's software could be better, but this pint-size, battery-operated gem will quickly earn a place in your pocket.

Honestly Portable

About the size of a 3-by-5 card, the Pilot fits easily in your hand or shirt pocket. It's less than an inch thick and weighs about six ounces with batteries. Most of its front is taken up by the touch-sensitive screen (it's not backlit, making it difficult to read in dim light); below is a row of buttons corresponding to the four built-in applications. Pressing any of these buttons turns on the Pilot and opens the application. You can also press a button on the front of the unit to start the Pilot; the display comes alive immediately and brings up the last active screen. A small stylus slips into the right side of the unit (though in a pinch you

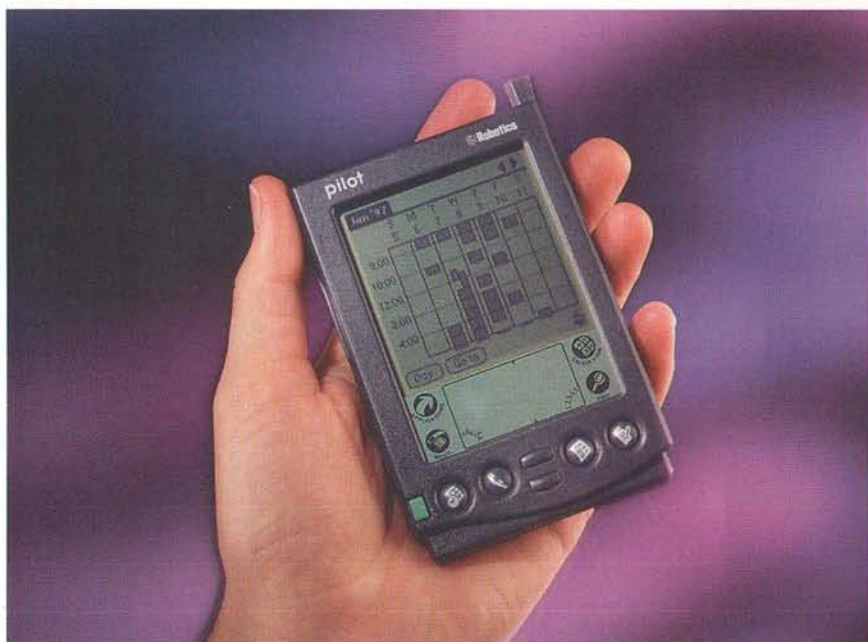
can use a fingernail to operate the Pilot).

The writing area, below the main LCD display, consists of an outlined box cleverly divided in half: everything written in the left half of the input box is interpreted as characters, and everything on the right as numbers. The Pilot uses Palm Computing's Graffiti technology, a unique handwriting-recognition system that lets you write any letter, number, or punctuation mark with a single stroke. It took me about a half-hour to get used to the system, but after that I was able to write quickly and accurately. You can also enter data using the on-screen keyboard.

It's easy to share data between the

Pilot and a Mac. All you have to do is place the Pilot in its cradle, which connects to your Mac's serial port, and press the HotSync button on the cradle. The entire process takes about 30 seconds, depending on what you're downloading.

The Pilot is available in two models, differing only in RAM capacity: the 1000 has 128K of RAM, and the 5000 has 512K. The 1000 is sufficient for most people; it holds about 500 addresses, 600 appointments, 100 to-do items, and 50 memos. But the 5000—which holds about four times as much data and costs only \$50 more—is the smart choice. The 5000's extra RAM also lets you load pro-



ROBERT PERRY

REAL PRODUCTS REAL RATINGS

Reviews you can trust: Unlike other publications, Macworld rates only final shipping products, not prototypes. What we review is what you can actually buy.
Outstanding ★★★★★ = 9.0–10.0 Very Good ★★★★ = 7.0–8.9 Good ★★★ = 5.0–6.9 Flawed ★★ = 3.0–4.9 Unacceptable ★ = 0–2.9

Pocket-size Copilots

grams now available for the Pilot, such as drawing programs, games, and utilities (see "Pocket-size Copilots"). Your data is kept in RAM, which is fueled by the unit's two AAA batteries. (Data survives about five minutes without batteries.) Palm Computing claims that the battery life is between 8 and 12 weeks with normal use; I got my Pilot 1000 with used batteries, never needed to change them, and still have a half charge.

OK, So the Software's Not So Hot

The Pilot doesn't try to be a general-purpose digital assistant, focusing instead on just the information most of us need to carry around with us. That's why its built-in applications are limited to a datebook, for managing calendars and appointments; an address book; a to-do-list manager; and a memo pad. There's also a four-function calculator that's nicely sized for use with a fingertip.

When you buy a Pilot that you intend to link with your Mac, you also have to spring for the separate MacPac, a \$14.95 package that includes the Pilot Desktop software for the Mac and an adapter for the cradle's data cable. It also includes InstallApp, a utility for loading additional software onto the Pilot. Unfortunately, this clunky utility feels like a bad Windows port: loading a program involves three dialog boxes, which queue the files to be sent to the Pilot at the next Hot-Sync. You can't see or change the contents of the queue, and InstallApp occasionally has problems recognizing Pilot applications on your hard disk.

The Pilot Desktop software isn't quite as exciting as the hardware; this bare-bones PIM is really more a Mac-based interface to the Pilot than an actual productivity program. Its four sections correspond to the main Pilot applications. The Date Book has daily, weekly, and monthly views, and you can create an event by clicking and dragging across a block of time in the daily or weekly view. Although you can set alarms, they're activated only on the Pilot; they're not transferred to the Mac. You can't import events from an existing calendar program into Pilot Desktop, and there's no system menu for events or contacts.

The Address Book fares a bit better: importing tab-delimited text files from other PIMs is easy, and there are enough fields to handle most people's contact information. The remaining

IN THE SHORT TIME SINCE

the Pilot was released, shareware and freeware applications, utilities, extensions, and games for it have proliferated

on the Web. The U.S. Robotics Pilot page (<http://www.usr.com/palm/>) has links to "unofficial" Pilot information; one of them leads to Adam Deaves's Pilot Software Archive (<http://www.inforamp.net/~adam/pilot/>), a great source of tiny (1K to 29K) apps for the PDA. I downloaded a few dozen of the most intriguing-looking programs from the 100 or so in the archives. Here are my favorites.

Applications Dinky Pad 0.92b (DaggerWare; \$5 shareware) lets you use the entire Pilot screen as a canvas. You can create works of art using five drawing tools in five thicknesses, then save your scribbles to individual files. This mini paint program even supports scrolling, giving you an effective canvas height of 14 times the height of the Pilot's screen.

Pilot Application Launcher 1.22 (Dovcom; \$12 shareware) turns your applications launcher into multiscreen, user-definable groups of ap-

plications, utilities, extensions, and games. It lets you choose whether battery usage is displayed with the default thermometer, by volts, or by percent, and adds tappable icons for resetting, locking, and turning off your Pilot.

Utilities As its name implies, Scott Ludwig's freeware Graffiti Help 1.5 is designed to help users learn to write Graffiti-style. Four screens show how the standard alphabet, punctuation, extended punctuation, and accent characters should be formed. An essential utility.

The simple but practical freeware Found Me? 0.11 displays a smiley-face icon with the words "Found Me?" The idea is that someone who has found your lost Pilot will tap the icon, see the message you've entered, and return the Pilot to its bereft owner.

AlarmHack 1.0 (ScumbySoft; \$5 shareware) extends the Pilot's alarm function. The standard Pilot alarm has a preprogrammed sound, rings once for two seconds, and displays a dialog box; AlarmHack lets you choose a different sound, modify its duration, and specify a repeat interval (so if you don't hear the alarm the first time, you'll get another chance). It even modifies the OK button to fill the entire screen, so you can

acknowledge an alarm without taking the Pilot out of its case (or your pocket).

Extensions If you find it frustrating to tap on the bottom of the Pilot screen to activate the menus, then choose a menu item from the top of the screen, check out DaggerWare's MenuHack 1.1. This simple freeware extension lets you tap on any application's menu bar to activate it.

To use MenuHack or any other HackMaster extension, you'll need to install DaggerWare's HackMaster 0.9 (\$5 shareware). Like an Extensions Manager for the Pilot, it lets you enable and disable any HackMaster extensions.

Games Inspired by the classic arcade game Asteroids, Roger Flores's freeware Rep-toids 1.0 lets you blow up asteroids and alien ships as you float in space. This game shows off the Pilot's excellent animation capabilities.

If you liked Space Invaders, you'll love Scott Ludwig's Invaders 1.0. The object of this freeware action game is to blow up rows of bomb-dropping aliens. It even has sound effects. And for those who don't like to blow things up, his PocketChess 1.0, also freeware, is a classic game in which you pit your skill against that of your Pilot (or a friend).—JEFF SACIOTTO

applications—To Do List and Memo Pad—are simple, but they get the job done.

Fortunately, we'll soon have alternatives to Pilot Desktop. Now Software (<http://www.nowsoft.com>) has announced a version of its Now Synchronize software that will link the Pilot to Now Up-to-Date & Contact, and other PIM vendors appear to be following suit.

The Last Word

The Pilot is just what most people need: a small, light electronic organizer that's easy to use, holds all the data you want, and doesn't torture you with constant battery changes or recharging. The Pilot

5000 could cost a bit less, but it does better than my old Newton MessagePad 100 (which cost a lot more). The Pilot is a winner.—TOM NEGRINO

RATING: ★★★★★/7.8 **PROS:** Truly portable; Graffiti handwriting software makes for easy input; effortless synchronization of data with your desktop Mac; frugal with batteries. **CONS:** Pilot Desktop software isn't an especially capable PIM; installer application is brain-dead. **COMPANY:** Palm Computing (415/237-6000, <http://www.usr.com/palm/>). **LIST PRICE:** Pilot 1000 \$249; Pilot 5000 \$299.

HP ScanJet 5p

MARRIED BY SLOW SCANS, LIMITED SOFTWARE

REPLACING THE SCANJET 4P AS the entry-level contender in Hewlett-Packard's product line, the ScanJet 5p offers few improvements. In addition to its lower price, the ScanJet 5p is attractively packaged in a smaller case, with some interesting design features that simplify setup and use. Unfortunately, there are trade-offs to its convenience.

Marginal Performer

In subjective tests, I found the ScanJet 5p to be not much different in terms of image quality from its predecessor, the ScanJet 4p (see *Reviews*, July 1996). On the test bench, Macworld Lab found that the ScanJet 5p generates a greater amount of image noise than do competing scanners, which affects the ability to fine-tune your scans.

Scanning speed is a mixed bag. Using HP's PictureScan 3.0 application, the ScanJet 5p is faster than the 4p for final color scans. If you bring your image directly into Adobe Photoshop using the TWAIN Acquire function—as most operators do—it's dramatically slower than the 4p, and other competing scanners (see "ScanJet 5p's Photoshop Dilemma"). At press time, HP was investigating a fix for this problem; check Macworld Online (<http://www.macworld.com/april.97/bp5p.html>) for updated information as it develops.

For basic scans, PictureScan gets the job done, but its cropping rectangle isn't always accurate. Clearly, HP's programmers didn't intend for users to change many settings, because you can't do much

more than sharpen the image and adjust resolution. HP originally had promised a 5p-aware version of its more sophisticated DeskScan II for spring release, but now has no plans to do so; you'll have to spend extra time in Photoshop getting your images right.

Visioneer's bundled PaperPort software provides optical character recognition (OCR) capability, albeit awkwardly. You first scan your document with PictureScan, then open it within



SUZANNE ROONEY

PaperPort to convert the artwork to editable text. If you plan on doing lots of OCR, you're better off with a dedicated program, such as Caere's OmniPage Pro or Xerox's TextBridge (see *Reviews*, June 1996).

In addition to PaperPort and PictureScan, HP also bundles Adobe Photoshop LE to let you fine-tune your scanned artwork. All software comes on a CD, though; if you only have a floppy drive, you'll have to shell out \$5 for disks, and an additional \$39.50 for Photoshop LE.

Smart Design

Despite its drawbacks, the ScanJet 5p offers some intelligent touches. Once the scanner is powered on, you can simply press the Scan button at the front of the unit, and PictureScan software launches automatically. Installation is clever as well: because you have to unlock the scanner's optical assembly before you can plug in the power cord, HP reduces the risk of damage by overanxious users.

Even SCSI termination is practically foolproof. If the scanner is the last item on its SCSI chain, it's automatically terminated, and if other devices are on the chain after the scanner, termination is left off. (If the ScanJet isn't going to be the only device on the chain, you may need to visit your dealer to get cables for use with its SCSI-2 jacks.)

A getting-started booklet gets you up and scanning in minutes, and a well-written user's guide offers detailed help. The ScanJet 5p's biggest omission is its lack of an automatic document feeder, a fairly standard option in this product class.

The Last Word

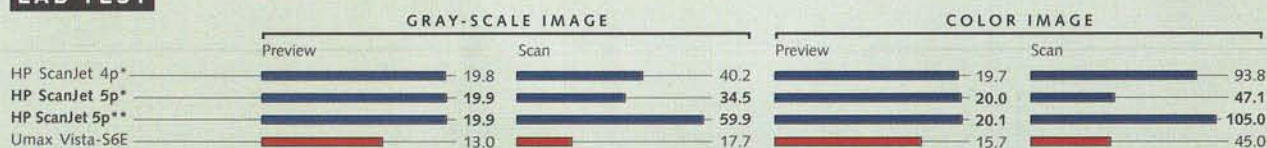
Clever design choices make the HP ScanJet 5p attractive, but its deficiencies in scanning speed and software are hard to ignore. Even harder to ignore is the fact that you can get better quality at a lower price from Umax's Vista-S6E scanner, an Editors' Choice in our recent roundup of low-cost scanners ("Scanning for the Rest of Us," March 1997).—GENE STEINBERG

RATING: ★★/4.9 **PROS:** Clever design; excellent manuals. **CONS:** Average scan quality; limited software; slow final scans within Photoshop; lacks automatic document-feeder option. **COMPANY:** Hewlett-Packard (800/722-6538, <http://www.hp.com>). **LIST PRICE:** \$530.

Macworld
LAB TEST

ScanJet 5p's Photoshop Dilemma

Best result in test. Times are in seconds. Shorter bars are better. Products are listed alphabetically.

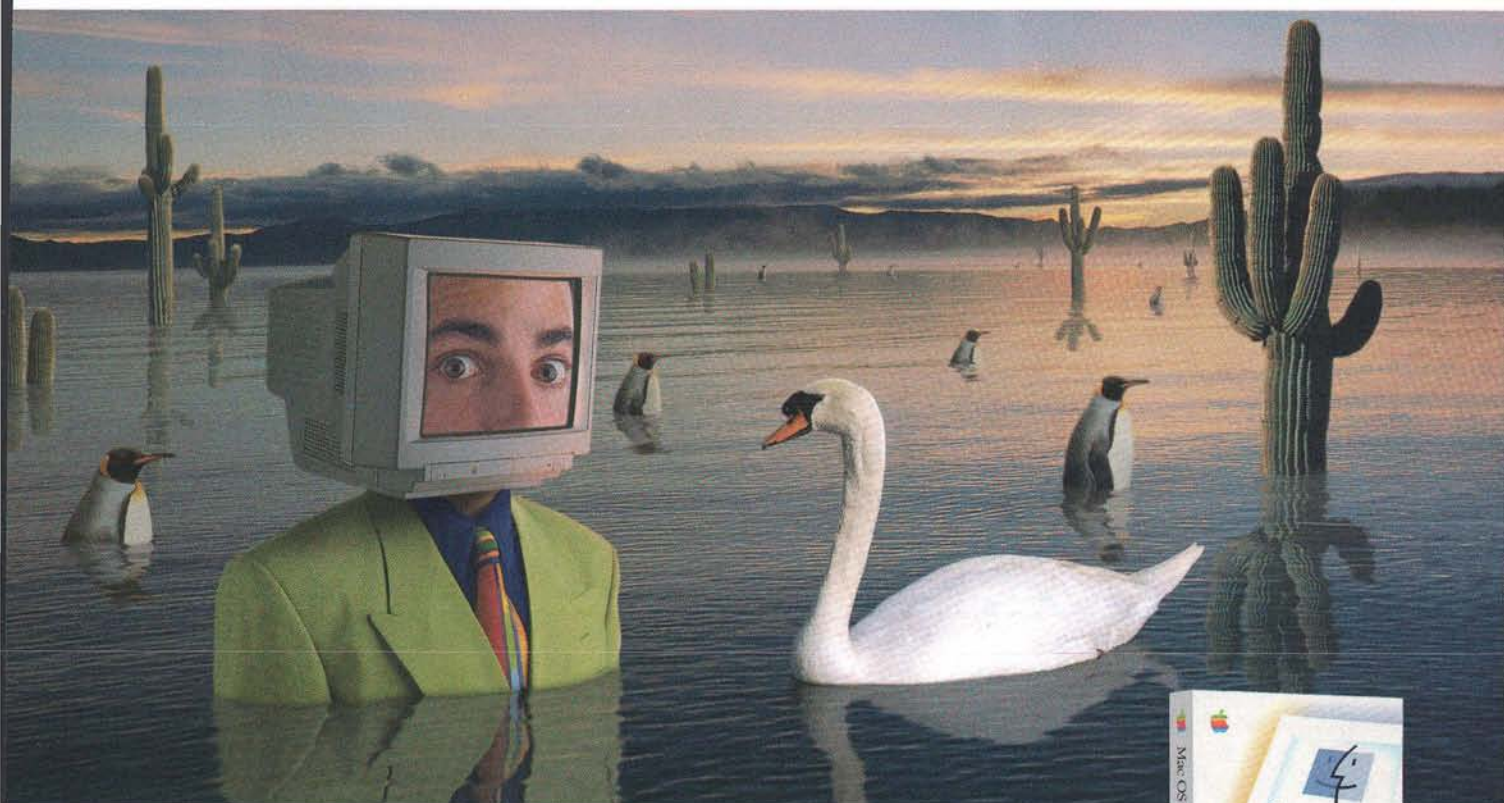


*Using PictureScan application. **Using Photoshop TWAIN Acquire module.

Behind Our Tests

For information on how we tested, see "Scanning for the Rest of Us," March 1997.—Macworld Lab testing supervised by Jeff Sacilotto

The new Mac OS 7.6. Now, wherever your mind goes your computer will follow even faster.



Enhance your performance on your Mac OS computer.

The job of a great operating system is to get out of the way. To let you fashion ideas, unencumbered by process. Nothing does that job better than Mac® OS 7.6. It not only raises 'intuitive' to new and exciting heights, it's also a major advance in the ease with which powerful new functions can be deployed on your desktop.

Now you can bring live web pages into your OpenDoc compatible documents and have them automatically updated. New virtual memory management allows you to launch your applications up to 40% faster, and your "Print" commands will execute up to 35% faster.* And you

can open PC files (including Windows 95 files) without the applications in which they were created. Mac OS 7.6 also makes the installation of an operating system simpler than it has ever been: in just a few steps you'll have access to QuickTime® applications, Apple® Open Transport, the OpenDoc® program, Cyberdog™ software*... all the latest advances from Apple.

Enrich your ideas by enhancing your computer. Buy the pleasantly affordable Mac OS 7.6 at your local Apple software reseller or call 1-800-482-6376 ext. 1421. For more information, visit us on the web at www.apple.com.



Acrobat 3.0

FORMS FEATURES GIVE ADOBE A NEW MISSION

ADOBE ADOBE HAS ALWAYS struck me as bloated, slothful, and not terribly useful. But just as Microsoft evolved the awful Windows 1.0 over a period of nine years to create the serviceable if unoriginal Windows 95, Adobe Systems has devoted four years to making its portable-document program the standard way to send documents electronically and have them look the same regardless of the system used to view them or the installed fonts. Version 3.0 brings Acrobat closer to that goal, with an added mission that might give it a useful niche.

Most of what Acrobat 3.0 offers was in the previous version: Exchange, which lets you edit Acrobat documents; Distiller, for batch-converting PostScript files into Acrobat format; PDFWriter, a printer driver that allows other programs to export Acrobat files; and plug-ins that let readers find content easily in your Acrobat documents. A Reader program lets you distribute Acrobat files freely to Mac and Windows users.

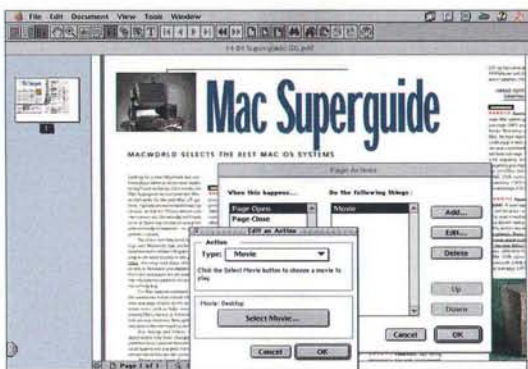
Where you'll find most of the enhancements is in Exchange, which now allows forms creation, the addition of dynamic controls, enhanced Web-display options, and enhanced display of images and text. Also new to Acrobat is a browser plug-in that makes it easier to read Acrobat files on the Web.

Forms "R" Us

Acrobat 3.0's major new mission is electronic forms. You can modify documents to include fields that readers can fill out; the completed forms are then delivered for processing via Acrobat's Web-link capabilities. To add form fields, you simply create text boxes and choose the font, action, and so forth from menus and palettes. Ditto for buttons, which are basically graphics with actions tied to them.

Remember that Acrobat is essentially a document postprocessor—you create Portable Document Format (PDF) files in a word processor or page-layout program, for example, then load them into Acrobat Exchange to add the form fields, Web hyperlinks, and buttons that help users navigate the document and

submit completed forms. Contrast that with a forms program or multimedia authoring tool like QuarkImmedia (see *Reviews*, December 1996), with which you actually create an interactive document rather than simply apply interactive features to a document created elsewhere. So why not use a forms program in the first place? The only possible answer is that Acrobat PDF has become a Web



Added Actions Acrobat lets you assign dynamic controls so that the reader's actions trigger links, movies, menu functions, or sounds.

standard, so readers might be equipped to deal with the PDF forms you create.

Acrobat 3.0 also adds a host of interactivity features: you can set a document to open on a specific page, to open linked PDF files within the same window, or to play a sound or movie as a user opens or closes a page or clicks on a button (see "Added Actions"). You can have the menus disappear for specific documents so users don't realize they're running Acrobat. These are welcome additions for kiosk-type applications, self-running demos, and online documentation. In fact, Acrobat seems to be moving toward interactive documents rather than trying to replace Web pages and the printed page. Acrobat files may still be an alternative to HTML and print, but in the context of interactive rather than static documents.

Paddling the Web Currents

But Adobe hasn't given up on the Web, as evidenced by several new Web-related features. One is a freely distributable browser plug-in that makes downloading Acrobat files from the Web seem less

time-intensive: it displays the current page on screen as the rest of the file continues to download, and displays graphics and text progressively. The only Acrobat files that take advantage of this progressive downloading are those saved in Exchange with Acrobat's new optimization feature. Unfortunately, that optimization is lost if you save your document—you have to do a Save As each time and make sure the optimization option is checked.

As an authoring environment, Acrobat adds welcome interactivity features to an already strong set of editing and composition tools. Other improvements include a lower price (it dropped from \$595 to \$295, a bargain compared with the \$995 QuarkImmedia) and more consistent color across monitors and printers.

Some of Acrobat's earlier awkwardness remains, however. The program is still uneven when it comes to supporting non-Adobe fonts; compare the title in the screen shot with the real thing in this issue's *Mac Superguide*. And because PDF files are still enormous, Acrobat may be widely used only for CD and intranet distribution.

Finally, in its zeal to ship Acrobat by the end of 1996, Adobe left out several promised features: it lacks support for Japanese text and plug-ins for importing images, directly controlling scanners, performing character recognition on scanned images, and generating automatic search indexes on OCR'd files.

The Last Word

If you use Acrobat now, you'll like the upgrade. Unfortunately, its utility remains limited despite Adobe's attempt to appeal to print, multimedia, and Web authors.—GALEN GRUMAN

RATING: ★★/6.2 **PROS:** New forms- and kiosk-oriented features are solidly implemented; faster Web-page display; new low price. **CONS:** Not as efficient as programs designed for creating interactive documents; font display is still uneven; Web-optimization feature is too easily overridden; lacks some promised features. **COMPANY:** Adobe Systems (408/536-6000, <http://www.adobe.com>). **LIST PRICE:** Single user \$295; ten users \$1595.

Tab Extra DCS Pre-film Proof

2 Tab Extra Sheets, 2 Sides on 80# Rives BFK

36"x48" Vinyl Poster

It's art. It's your image. Trust it to Tektronix color printers.

More design professionals choose a color printer from Tektronix, the leader in workgroup color printing, than from anyone. It is because they want the richest, most vibrant, and controllable color in the world. The fastest. The brightest. And the most versatile. All these color printers are cross-platform and connect to networks in a snap. They're economical and reliable.



The Power of Color
Call for your free CD.

And they'll make all your comps and pre-film proofs worthy of a standing ovation.

Which one is best for you? Get your free *Power of Color* interactive CD with print samples and find out!



Poster-sized prints
On any paper

NEW Phaser 600



Fastest color
Pennies a page

NEW Phaser 350



Photographic print quality
Letter bleed

NEW Phaser 450



Photographic print quality
Tabloid bleed

Phaser 480X



Brilliant color
Any paper both sides

Phaser 300X



1200 dpi color laser
Office workhorse

Phaser 550

Call 1-800/835-6100, Ext. 1369. <http://www.tek.com/CPad?1369>

Circle 143 on reader service card

Tektronix

Pinnacle Micro Apex

KING-SIZE REMOVABLE OFFERS RESPECTABLE SPEEDS

FOR LONG-TERM DATA ARCHIVING, magneto-optical drives have been the product of choice due to their reliability. Unfortunately, MO drives have also traditionally been slow, and thus ill-suited to accessing the large files created for desktop video and multimedia. Pinnacle Micro's Apex 4.6GB MO drive addresses the shortcomings of its medium, promising near-hard-drive speeds and large storage capacity tailor-made for multimedia work.

As Fast As a Speeding Drive?

My first exposure to the Apex was a bit troublesome. The first time I inserted a cartridge, it failed to mount and then jammed inside the mechanism. The manual's suggestions on ejecting media didn't work, and I had to obtain a second test unit. This replacement performed flawlessly through multiple insertions and removals of media, extensive formatting, and read-write tests.

Once I got it working, the Apex's performance was true to its billing: its speeds come fairly close to those of regular hard drives in some cases. In standard Macworld Lab storage tests, the Apex came closest to hard drive speeds when opening large Adobe Photoshop images (see "Apex Speed a Mixed Bag"). It didn't fare as well when copying files, however: Apex took three times as long to duplicate a file as a Quantum 2GB hard drive (partly due to the fact that optical drives make double passes when writing data). The Apex 4.6GB also had trouble keeping up with

our baseline hard drive when performing database searches, but compared to that of older, slower hard drives, its performance is quite respectable.

I tried using the Apex as a start-up drive on my Power Mac 9500, which proved difficult because Pinnacle Micro's disk formatter forces the media to eject at restart. Start-up time was only slightly



ARNOLD THORPE

longer than it was using the 9500's internal drive. In Finder file-copying tests, the Apex offered performance similar to the Iomega Jaz drive's (*Reviews*, June 1996), but in the file-duplication test it was almost twice as slow.

Nuts and Bolts

You can configure the Apex vertically or horizontally. Its rear panel has two SCSI-2 jacks rather than the standard 50-pin type found on many drives, so you may need an extra cable if you intend to put this drive into a busy SCSI chain. A black push-button switch is used to set SCSI ID, and a second red switch controls 16 options, including

active-termination, termination-power, and write-verification settings. The manual covers both Macintosh and PC users, and while it's serviceable, it lacks a good quick-start section—you're forced to read a good deal of it before putting the drive into service.

The drive uses a 5.25-inch cartridge about 0.25-inch thick, with a large metal shutter at the top. Inside the cartridge the Apex's disc resembles a two-sided CD; each side is formatted separately.

Pinnacle Micro's software includes a system extension to mount the Apex media, and a cartridge-formatting and -partitioning utility. This program's Auto Setup function can initialize the media in a few seconds, but a full low-level format lasts nearly an hour and takes over your Mac. Once set up, the drive runs with a soft purr, and makes a soft chugging sound when it spins up or accesses data.

The Last Word

With a list price just shy of \$2000, the Apex is not a casual purchase, but if you store large files you'll find that its cost per megabyte declines rapidly as you accumulate cartridges. More important, its media appear robust, the mechanism operates quietly, and the drive offers speeds nearly as fast as those of a traditional hard drive for some tasks. If you do graphics and multimedia work, Apex deserves serious attention.—GENE STEINBERG

RATING: ★★★★★/7.0 **PROS:** Near-hard-drive speeds; huge capacity; robust media. **CONS:** Dense manual; complex setup options. **COMPANY:** Pinnacle Micro (714/789-3000, <http://www.pinnaclemicro.com>). **LIST PRICE:** Drive \$1995; cartridge \$169.

Macworld
LAB TEST

Apex Speed a Mixed Bag

■ Best result in test. Times are in seconds. Shorter bars are better.

	Copy File to Drive	Copy File from Drive	Duplicate File	Open Photoshop File	Save Photoshop File	FileMaker Pro Search
Pinnacle Micro Apex	32.6	24.5	61.9	59.9	56.8	103.6
La Cie 2.6GB Optical ^A	31.8	38.9	52.4	■	■	■
Iomega Jaz ^C	27.5	27.0	35.7	■	■	■
Quantum Fireball TM 21 ^D	18.7	17.8	20.8	50.6	35.5	69.2

^A Editors' Choice, "Best Buys in Optical Drives," October 1996. ^B Due to changes in our test methodology, these previously tested products' times are unavailable. ^C Tested with Disk Verify off; reviewed June 1996. ^D 2GB hard drive.

Behind Our Tests

Tests were performed on a Power Macintosh 7500/100 with 32MB of RAM using Adobe Photoshop 4.0 and Claris FileMaker Pro 3.0.3. All drives were tested via the Mac's built-in external SCSI connection.—Macworld Lab testing supervised by Matt Clark

Nothing comes closer to reality.

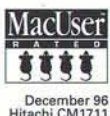


"Best picture quality." "Best legibility." "Best image sharpness."
Hitachi monitors are taking top honors in the performance tests that matter the most in review after review.

They've also been singled out as the best value in top-end, performance monitors — "a steal" as Macworld put it.

So if you want a monitor that your eyes can appreciate as much as your wallet, your choice is simple. Hitachi.
Call for the full story and your nearest retailer. 800 441-4832.

	SuperScan Mc 801HR	SuperScan Mc 801	SuperScan Mc 20	SuperScan Mc 611	SuperScan Mc 600
CRT size	21 inch	21 inch	20 inch	17 inch	17 inch
Viewable image	20.0"	20.0"	18.7"	15.9"	15.9"
Dot pitch	.22 mm horizontal .16 mm vertical		.28 mm	.22 mm (h) .16 mm (v)	.28 mm
Max. resolution	1600 x 1200	1600 x 1200	1600 x 1200	1600 x 1200	1360 x 1024
Scan frequency	31-96 KHz 50-160 Hz	31-89 KHz 50-160 Hz	30-82 KHz 50-120 Hz	31-92 KHz 50-120 Hz	30-64 KHz 47-104 Hz
MSRP	\$ 2,199	\$ 1,999	\$ 1,599	\$ 949	\$ 799



MPR II

3-year warranty

Colorific



SuperScan
An advantage you can clearly see.

NSA 100 Lowder Brook Drive, Westwood, MA 02090
Tel: 800 441-4832 Faxback: 800 555-8552
<http://www.nsa-hitachi.com> The ENERGYSTAR™ emblem does not represent EPA endorsement of any product or service

RASTEROPS

HITACHI

Club Mac
800 258-2622

DTP Direct
800 643-3328

Express Direct
800 290-4637

Mac Connection
800 800-1111

Mac Mall
800 222-2808

Mac Warehouse
800-255-6227

Mac Zone
800 248-0800

PrePress Direct
800 443-6600

Circle 74 on reader service card

Nisus Writer 5.0

RENEGADE IS LONG ON INNOVATION, SHORT ON BASICS

MICROSOFT WORD 6'S BLOAT and sluggishness destroyed its status as the only pro-level word processor worth considering. With the throne awaiting a nimbler, more smartly designed program, Nisus Writer's small but enthusiastic band of fans had every hope that their favorite would steal the crown.

Version 5.0.1 of this perennial underdog is much improved, having finally shed the quirky interface elements and cascade of manuals that prevented its professional acceptance. Macintosh users willing to put their faith in this independent candidate are in for some nice surprises.

Nisus Can Be

Your jaw will drop when you sit down with Nisus Writer. Its list of features stretches to the moon and back, and the interface is clean and intuitive. (Microsoft fans: Floating tool palettes are available if you must have them; fortunately, they're hidden until summoned.)

Take Nisus's touches for everyday writing: unlimited undos; true Macintosh drag and drop; multiple noncontiguous text selections; smart cut-and-paste; control-key-triggered balloon help; Apple Guide; a speedy, keyboard-controllable spelling checker; and synchronized scrolling for comparing side-by-side documents. And what other program lets you rename an open document without closing it, save and close all documents with a single keystroke, or hear your document read out loud—not just in English, but in French, Italian, German, or Spanish? Power users will appreciate Nisus Writer's potent indexing commands, new style-sheet functions, table of contents generator (one level only), equation editing, footnotes or endnotes, and so on. The program also has an outstanding drawing layer, complete with text wrap around graphics, grouping, rotation, and transparency commands.

Meanwhile, Nisus Writer's traditional strengths still stand out. No program is better at handling multiple languages, even those whose typing proceeds from right to left or bottom to top. Likewise, the Power Find feature blows away all

rivals; it lets you find and replace fancy patterns not just in the current document, but in all open documents—even inside closed files on your hard drive. You can now export your document as HTML code, ready for posting on the Web. Finally, Nisus Writer offers two macro features: a "watch-me" mode for simple tasks, and a full programming language capable of reformatting databases, launching Web addresses, and more.

Downhill from There

Unfortunately, several of the program's chronic weaknesses remain. Some standard features are simply missing: despite 18 months of passionate user requests in Nisus's online areas, for example, there's still no integrated outliner. Other miss-



Nisus Writer in Action Nisus Writer's graphics layer lets you integrate graphics with your text; its operation is surprisingly smooth and solid.

ing functions include grammar checking; automatic envelope printing; and zoom in, zoom out. And the self-launching but separate table-making program still can't create tables that span a page break.

Other features are only half-implemented. You still can't vary the number of columns in a document. The abbreviation-expansion feature doesn't complete words as you type, as in Word 6 or Type-It4Me; you have to use an additional command to expand them. And although the MacLink filters import and export other word processors' files smoothly, including those from Word 4, 5, and 6 and WordPerfect, you lose style sheets and other data in the translation.

Unfortunately, rather than fixing

those shortcomings, Nisus put a lot of effort into making its program the first commercial OpenDoc "container." This fledgling plug-in technology from Apple was designed to fight the feature bloat of today's behemoth applications. The CD version of Nisus Writer comes with OpenDoc modules for graphing, drawing, game playing, database access, and Web browsing—just drag one from the desktop to embed it in any Nisus document. But as the "read me or else" file warns, "Because OpenDoc is such a new technology, you may experience problems, including crashes. . . . Save your work early and often, and don't be too surprised at unusual behavior." That's the understatement of the year; all six OpenDoc components I tried crashed or acted buggy when in a Nisus document.

Is this instability Nisus's fault? After all, as a container program, Nisus inherits the bugs of each component inside it. Yet these same OpenDoc parts worked fine in another container program (Cyberdog). Furthermore, integration between OpenDoc and the rest of Nisus is lacking; because OpenDoc elements lie on a separate layer of your document, they can't interact with your graphics or your typing.

The Last Word

As a professional document processor, Nisus is uneven. For every stunning, exclusive feature, it lacks something basic: it offers two programming languages, but no zoom command; ten editable clipboards, but no phone number for tech support; serious book-making features, but increasing sluggishness as documents get longer (especially on older Macs).

As a result, Nisus Writer 5 isn't the Word 6 killer the ads claim it to be. Overall, however, it's an extremely powerful and likable word processor. And it has great potential: if Nisus Writer can shed its rough spots without bloating its conservative RAM and disk requirements, the next version could escape nichedom and enter the mainstream.—DAVID POGUE

RATING: ★★ ★/6.6 **PROS:** Vast feature list; clean design; outstanding graphics layer; multiple undos and clipboards. **CONS:** No outliner, zoom commands, or multiple-column flexibility; OpenDoc component is buggy and incomplete. **COMPANY:** Nisus Software (619/481-1477, <http://www.nisus-soft.com>). **LIST PRICE:** \$249.

4-Sight Fax 4.0

FLEXIBLE, RELIABLE FAXING ON YOUR NETWORK

ALMOST EVERY COMPANY CAN realize time and cost savings by providing fax capabilities to all of its employees, but equipping every Mac with its own fax modem is rarely practical. Filling this gap, 4-Sight Fax 4.0 enables users on networked Macs to send faxes through a centralized server that handles imaging, queuing, and sending and receiving. Users will find 4-Sight Fax's client software easy and useful, and network administrators will find the server software—which supports multiple fax lines, custom accounting fields, and e-mail/database integration—a rock-solid foundation for serious business solutions.

4-Sight Fax's server application can run on a dedicated system or coexist with other applications. Server requirements are modest: 4-Sight suggests a Macintosh IIci or better with 8MB of RAM, though gray-scale faxing requires an additional 4MB. More expensive multiline versions require a NuBus or PCI multiport serial card to be installed in the server. The server also requires an ADB security dongle, a truly distasteful little gadget that's easy to install but also too easy to lose or damage.

Simple Installation

I installed and tested the 4-Sight Fax server on both a Centris 650 and a Power Mac 6100/60. Though the interface is spotty at times, server setup is easy enough; I configured a server without difficulty in about an hour.

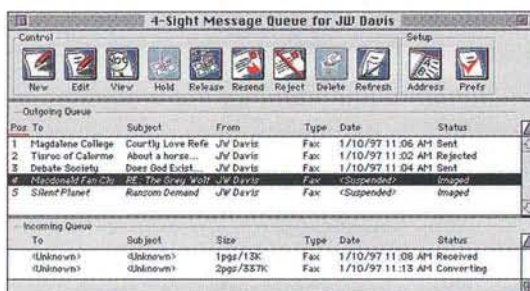
4-Sight Fax uses a series of spartan dialog boxes to let you configure the modem; fax queues; and printing, archiving, font-handling, and accounting features. You can manually create server-based shared address books or import them from text files. 4-Sight Fax supports up to 14 cover pages, though you have to create a PICT file in another application, then an extremely basic editor to position data fields atop the image.

Once the server is configured, you create Users and Groups in much the same way as you would on an AppleShare server. Administrators can define permissions to limit a user's ability to view queued messages, send priority faxes, perform fax broadcasts, or receive inbound

faxes. As in AppleShare, Groups can provide a set of permissions to a range of users, and administrators can import user lists, automating the account-creation process.

Fax from the Desktop

Client software is easy to install and use, and makes modest resource demands: a IIci or better running System 7, with 1MB of free disk space and 300K of available RAM. Fax configuration, creation, and monitoring are all handled by a 4-Link menu added to your menu bar. As



Full Fax Management 4-Sight Fax's client software displays and manages Incoming and Outgoing fax queues.

with most other fax solutions, you send faxes by printing a document to the fax print driver; you may select this driver via the Chooser or the 4-Link menu, or by holding down a modifier key—shift, option, or ⌘—before selecting Print. If you need to combine several documents of different types within one fax transmission, you can drag and drop them onto the included Fax Draggin applet to create a single fax message.

The 4-Sight Fax dialog box allows you to specify print quality, priority, cover sheet, and transmission delay. After this, simply select one or more addresses and send the fax off to the server. The 4-Link application allows you to view and manage the current fax queue.

Overall, I found 4-Sight Fax's performance to be good. Messages offload to the server quickly, and fax transmission times are comparable to those of stand-alone fax modems. Fax quality was on par with my Global Village Teleport fax modem, and—unlike some fax software packages I've used—4-Sight Fax was rock-solid reliable.

Custom Stuff

What's truly exciting, though, is that 4-Sight Fax goes beyond being simple fax software—its extensibility makes it ideal for sophisticated solutions. Custom accounting fields allow administrators to track not only who is sending faxes, but also what projects or clients they're working with. Fax creation and delivery can be integrated with popular e-mail applications such as CE Software's QuickMail or StarNine Technologies' Quarterdeck Mail. 4-Sight Fax's client software is Apple event-aware, and can be integrated via AppleScript with other applications such as Quarterdeck's WebStar and Claris's FileMaker Pro. On the receiving end, 4-Sight Fax offers transparent links to a variety of optical character recognition packages, including Caere OmniPage and Xerox TextBridge, to translate incoming faxes into editable text.

4-Sight Fax offers even more advanced features using optional hardware and software. Using the FaxPack development kit from Soft Solutions (770/457-9400), I integrated 4-Sight's fax capabilities into an existing ACI US 4th Dimension database in less than an hour. 4-Sight's

PC-Link software provides support for Windows clients, and 4-Sight Fax supports inbound routing of faxes to the recipient's workstation via 4-Link or e-mail with installation of a special router and voice-capable modem, eliminating the need for an administrator to manually format each one.

The Last Word

Priced just below \$800 for ten users, 4-Sight Fax 4.0 isn't cheap; it is, however, a good value. 4-Sight Fax is easy enough to use for simple faxing jobs, and powerful enough for sophisticated ones. Even more important, it works reliably, saving your company time and money.—J.W. DAVIS

RATING: ★★★★★/8.8 **PROS:** Reliable; strong administration and accounting features; excellent extensibility. **CONS:** Server dongle required; interface weaknesses; expensive. **COMPANY:** 4-Sight (515/221-3000, <http://www.4sight.com>). **LIST PRICE:** \$795 for ten users on a single line.

UniQorn 1.2

DESKTOP PUBLISHING MEETS JAVA

LAST YEAR'S CHALLENGER TO Adobe PageMaker and QuarkXPress, UniQorn 1.0, delivered high-end typographical features and color controls but was woefully buggy and unpolished (see *Reviews*, August 1996). With version 1.2, SoftPress Systems has cleaned up the product and added a dozen new features that make it easy to turn traditional print documents into Java-powered Web pages. But in spite of its innovations, UniQorn remains largely sluggish and quirky.

A New Approach to Java

With PageMaker and QuarkXPress, you use plug-in filters to export text as HTML. UniQorn takes a completely different approach: its new Java Export command lets you save UniQorn documents as Java applets. The program converts graphics to JPEGs or GIFs, creates a page-description file in a proprietary format, and generates Java code that displays the page description in a browser. The advantage of converting to Java rather than to HTML is that fonts, formatting, and page geometry are preserved more precisely; the drawback is that not all browsers can read the resulting Java (you need Netscape Navigator 3.0 to view the files on a Mac).

Another Web-publishing enhancement is a new palette that lets you attach a URL to any selected text or frame. The embedded URLs don't appear when you print the page, but when you export the page they become live hypertext links. Because UniQorn doesn't export HTML, however, the embedded URLs don't automatically appear as colored, underlined text on your Web pages; you have to format the text manually within UniQorn to make it recognizable as a link. By layering transparent, URL-embedded frames over frames containing graphics, you can in effect build image maps.

Another tool that helps you prepare print documents for the Web is UniQorn's flexible presentation feature, which lets you define page geometry in relative rather than absolute terms. That means instead of specifying a frame's exact size as you would in QuarkXPress, you

can define its size and position relative to the page (and to other objects on the page). When you change a document's page size or orientation—as you might when converting a traditional print document into electronic form for the Web—UniQorn automatically scales text and picture boxes and positions them to maintain the balance of the original composition. The flexible presenta-



A Real Knockout UniQorn offers typographical controls you don't find in most page-layout systems. For example, selecting Knockout from the Colors palette makes text transparent, allowing underlying images to appear within the text itself.

tion features are a bit complex, but the approach works well once you understand how to define a frame's size and position in relative terms.

The GX Factor

UniQorn's QuickDraw GX support remains a mixed blessing. While the typographical results are admittedly stunning, giving you precise control over each character's slant, weight, and spacing, they're only possible with GX fonts—and only a few of those are included with the program. (Fortunately, version 1.2 fully supports Type 1 fonts as well.)

Until recently, QuickDraw GX wasn't simply an *option* with UniQorn; it was required to run the program. You can now use Apple's GX Graphics Extension, which lets you run GX-dependent programs without installing the full version of QuickDraw GX. The catch—and it's a big one—is that you can't *print* from UniQorn using the GX Graphics Extension. That can be a drawback for many users, considering that the full version of GX requires more RAM and is less than sta-

ble on some systems. Indeed, shortly after I installed GX to run UniQorn, I experienced considerably more than the usual number of freezes and lockups.

Other Improvements

The upgrade offers other noteworthy improvements, including support for a wider range of file formats—you can import and export GIF and JPEG files directly, for example. You can now apply tints of existing colors, and improved frame controls let you wrap text (up to 255 characters) along a path or around the edge of a frame for more sophisticated text effects. One of the better enhancements is a new text color called Knockout, which allows an underlying graphic to show through text in a frame (see "A Real Knockout").

Despite the improvements, some of UniQorn's traditional desktop publishing features are still weak. For example, there's no easy way to group and ungroup multiple objects on a page, the Align command can't distribute space evenly between a series of selected objects, and support for gradient fills and drag-and-drop text editing is missing. And UniQorn's buttons and menu commands are still poorly organized—for example, you adjust a frame's border, size, and rotation using the Modify Frame command and adjust the frame's text inset using Modify Text, when it would make more sense for the two to be grouped. UniQorn is also slower than its competitors—even simple formatting changes and text searches are sluggish on a Power Mac.

The Last Word

UniQorn's Java-powered Internet publishing tools are impressive, but for creating Web content a dedicated tool like Adobe PageMill is a better choice. As a traditional page-layout program, UniQorn still trails its competitors; on the other hand, if you need to create both traditional and Web versions of your documents—and you're willing to run QuickDraw GX—UniQorn may be just what you need.—JOSEPH SCHORR

RATING: ★★ ★/6.3 **PROS:** Exports Java-based pages; powerful typographical controls. **CONS:** Slow performance; cluttered, confusing interface; requires QuickDraw GX. **COMPANY:** SoftPress Systems (415/331-4820, <http://www.softpress.com>). **DIRECT PRICE:** \$449.

ANOTHER MINDSPRING USER

MindSpring users look like everyone else... until they spring onto the Internet! MindSpring provides fast, reliable, easy-to-use performance for Mac or Windows that gets you directly to the Internet. No traffic tie-ups. No detours. You'll click right along with noggin'-springin' extras like e-mail, newsgroups, chat sessions and the best web browser available.

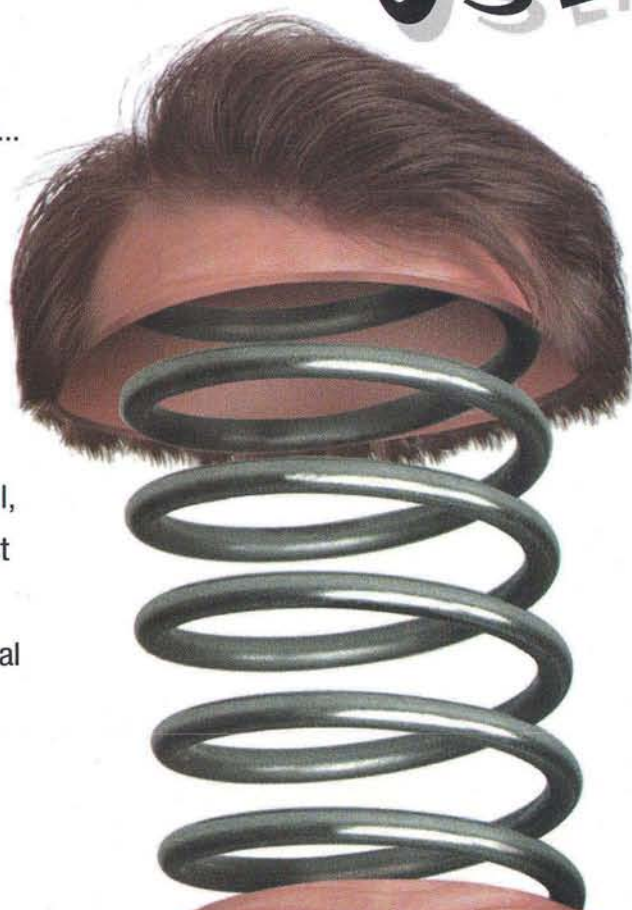
We offer you friendly, 24-hour technical support by phone or e-mail. Flexible pricing plans starting as low as \$6.95 a month. Unlimited access for \$19.95 a month. And each plan comes with a 30-day money back guarantee. So if you want a fast, reliable connection, call toll-free **888-677-7464**, or check out our web page at **www.mindspring.com**. It's a heads-up move.



MindSpring™

Direct To The Internet.

© 1997 MindSpring Enterprises, Inc.



Integrated Keyboards

TRACKBOARD/NUMPAD COMBO BEATS THE GLIDEPOINT BY A FOOTPRINT

USING A SEPARATE MOUSE OR trackball isn't practical for most PowerBook users, who often have to work in close quarters. But does a keyboard with a built-in pointing device make sense on the desktop? To find out, I auditioned keyboards from Alps Electric and Datadesk. Both products offer distinct advantages, as well as some drawbacks.

Key Strokes

Alps Electric's GlidePoint Keyboard looks like a conventional keyboard, apart from a 7-inch-wide bulge at the front to accommodate the integrated touchpad,



Datadesk's TrackBoard and NumPad (top), and Alps Electric's GlidePoint Keyboard.

which is a modified version of Alps' stand-alone GlidePoint (see *Reviews*, February 1996). Like the Datadesk TrackBoard's, the GlidePoint's pointing device is located on the right, so it's not suitable for southpaws. The GlidePoint Keyboard's key layout is similar to the arrangement on Apple's Extended Keyboard, with function keys at the top, a numeric keypad on the right, and arrow and secondary function keys in between.

The only unconventional feature of the GlidePoint Keyboard is the spacebar, which is split into two unequal parts: the longer section works normally, while the smaller one duplicates the function of the delete key. Although this is supposed to make it easier to correct typing mistakes, I found myself deleting

characters unintentionally. Fortunately, you can use the GlidePoint's control panel to program both sections to space. The GlidePoint also comes with a contoured plastic wrist rest that fits snugly against the keyboard.

Colorful Design

Datadesk's TrackBoard is more of an eye-grabber, with violet (yes, violet) escape, function, and power keys that stand out even more than its integrated trackball. (If you really want to make a splash, the TrackBoard comes with replaceable colored caps for the \mathbb{A} , option, enter, and arrow keys.) To conserve space, the keyboard sports single control, \mathbb{A} , and option keys, and some keys (the enter, backslash, and arrow keys) have secondary functions that you access by pressing the control key at the same time. The TrackBoard's narrow border also contributes to its small footprint.

Instead of an integrated numeric keypad, Datadesk sells a separate unit called the NumPad that connects to the main keyboard using a supplied cable. You can set the keypad off to one side when you're not using it, or you can save \$40 by not buying it at all.

Even with the keypad installed, the TrackBoard takes up far less space on the desk than the GlidePoint, mostly because of its smaller depth. In my home office, for example, the TrackBoard was compact enough to let me write in comfort when I pushed it up against my computer, something I couldn't do with the GlidePoint.

Pointing the Way

The GlidePoint's built-in touchpad is similar to the advanced TrackPad in Apple's newest PowerBooks. You position the cursor by running your fingertip over the surface, and you click by tapping your finger; to drag, you click twice and slide your finger along the pad. With a little practice, operating the GlidePoint

is as easy as using a mouse, although it takes some concentration to keep your finger relaxed to avoid fatigue.

Buttons at the bottom and sides of the pad can be programmed to click from one to three times, drag lock, or enter simple keyboard shortcuts like \mathbb{A} -option-X. You can even program the buttons to perform no function at all, a handy option if you find yourself pressing them accidentally with your hand, as I sometimes did.

Although it's not difficult to use, the TrackBoard's pointing device is less capable than many stand-alone trackballs on the market (see *Reviews*, February 1997). The ball's small size and mass make it difficult to position the cursor accurately, and you have to use Apple's limited control panel to adjust cursor response. I was also disappointed to discover that you can't reprogram the TrackBoard's three buttons or add keyboard shortcuts, as you can with the GlidePoint and most competing trackballs.

The Last Word

After using both keyboards for a few weeks, I wasn't about to toss my mouse. The GlidePoint's touchpad is the better pointing device of the two. However, I prefer the smaller TrackBoard for entering text, partly because the protrusion on the front of the GlidePoint sometimes interfered with my typing. (I also prefer the feel of the TrackBoard's key switches, but that's mostly a matter of personal taste.) Even without the trackball, I'd be happy to use the TrackBoard as my primary keyboard.—FRANKLIN TESSLER

GlidePoint Keyboard

RATING: ★★ ★/5.2 **PROS:** Full complement of keys; intuitive touchpad pointing device. **CONS:** Large footprint; buttons can be pressed accidentally; bulge on front can interfere with typing. **COMPANY:** Alps Electric (408/432-6000, <http://www.alpsusa.com>). **LIST PRICE:** \$139.95.

TrackBoard and NumPad

RATING: ★★ ★/5.9 **PROS:** Small footprint; separate numeric keypad. **CONS:** Small trackball; no way to program buttons. **COMPANY:** Datadesk (206/842-5480, <http://www.datadesk1.com/datadesk>). **DIRECT PRICE:** \$139.95 for both; \$99.95 for TrackBoard alone.

"I watched them
take the TV, the stereo,
the 18th century Chippendale
chairs.

But when they took the
PowerPrint, I says to myself,
'Hey, we need that!'"

"I'm no hero. I just did what anyone would do."

PowerPrint — there's
just no other way to
print from a Mac to
a PC printer.



PowerPrint is everything you need to print from your Mac to over 1000 PC printers from companies like Canon, Epson, Hewlett-Packard, Okidata and Panasonic.

For less than \$150, PowerPrint has the software and smart cable that makes Mac to PC

printing possible. That's everything you need in one box! So take advantage of the same wide selection of features and prices that PC users have been enjoying for years.

Get PowerPrint — the Mac to PC printing solution. It's absolutely priceless!



Call: 800.865.5503
Website: www.gdt.com

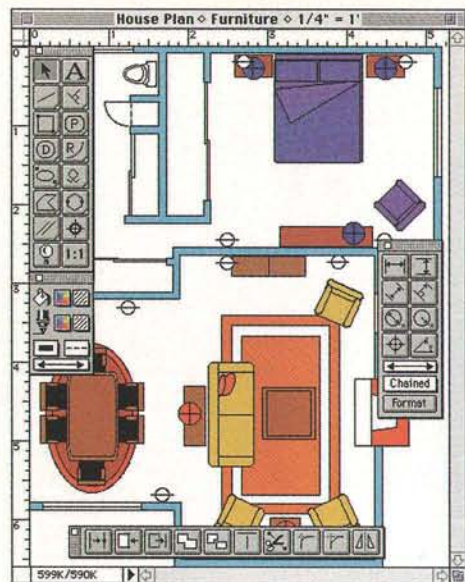
PowerPrint®



© 1996 GDT Software, Inc.
PH: 604.473.3600 FAX: 604.473.3699
All product and corporate names are trademarks of their respective companies.

Circle 32 on reader service card

GDT SOFTWARE
INCORPORATED



MacDraft® 4.2

The powerful, low-cost solution for all of your drawing and drafting needs.

\$249

To order MacDraft or MacPlot:

1-800-622-7568



The MacPlot® Family

Print in color from any Mac software to large format printers from CalComp, ENCAD, HP and more!

From **\$399**



Microspot USA, Inc. (408) 253-2000

Se habla español

Demo copies available - www.microspot.com

Circle 3 on reader service card

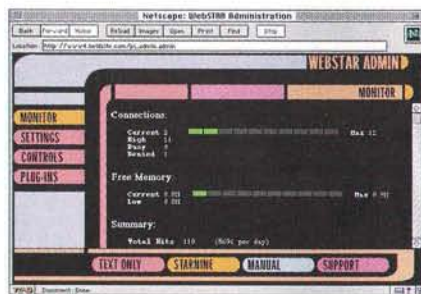
Reviews

WebStar 2.0

BETTER, STRONGER, FASTER

MORE THAN 10,000 PUBLICLY ACCESSIBLE Web sites are dished out by Macs, and this crowded solar system is centered around a single star: WebStar, from Quarterdeck's StarNine Technologies division. The simple fact that WebStar dominates the Mac OS world would make the arrival of version 2.0.1 noteworthy, but this upgrade also happens to be faster and more powerful than its predecessors (and the competition).

WebStar's list price is unchanged from that of version 1.3, but now you get more for your money. WebStar 2.0.1 includes the WebStar/SSL Security Toolkit, which allows you to set up an



Beam Me Up, WebStar WebStar 2.0 supplements the WebStar Admin utility with Web-based administration features that let you tweak and even monitor the server from afar.

authenticated server—for online commerce, for example. (To use WebStar's Secure Sockets Layer features, you have to purchase a digital identification from VeriSign.) Also included are Adobe PageMill 2.0 and a CD-ROM packed with 300MB of third-party software.

Performance is paramount for Web servers, and WebStar 2.0.1 is dramatically faster than its predecessors. Because WebStar contains a cache that copies details about frequently accessed files to memory, it doesn't have to delve into the Mac's sluggish file system to get that information. A new plug-in module caches the contents of frequently used files so that when a cached file is requested, WebStar can serve it directly from RAM. And the new version supports the HTTP 1.1 draft specification's KeepAlive extension, which allows multiple requests to be sent over a single TCP connection for faster downloading.

Plug-in Party

WebStar 1.3 introduced server plug-in modules, which perform tasks typically associated with CGI (Common Gateway Interface) programs. Plug-ins improve performance by eliminating the need for a CGI to communicate with WebStar via the Mac OS's Apple events mechanism.

WebStar 2.0.1 includes a dozen or so new plug-ins. One is a server-side includes (SSI) module that lets you create page counters, display the current time and date, show or hide HTML based on a visitor's browser, and more. WebStar's SSI features don't measure up to those of Maxum Development's NetCloak (see *Reviews*, January 1997), but they're good enough for basic tasks.

Another new plug-in offers terrific remote-administration features that let you adjust server settings and monitor the server's load from any Web browser, using an interface straight out of *Star Trek* (see "Beam Me Up, WebStar"). If you prefer down-to-earth (and faster-loading) controls, you can use a text-only interface.

Other noteworthy plug-ins include a byte server that dishes out Adobe Acrobat 3.0 PDF files, a Java virtual machine that can run server-side Java applets, a directory indexer that provides a user interface for transferring files to and from your site, and a mail plug-in that lets WebStar send the contents of a form.

Some of the plug-ins have minor bugs, but a WebStar 2.0.2 release should be available by the time you read this. Other quibbles: the manual is only a bit better than previous versions' (although an extremely active mailing list takes up the slack), and the user interface could use some polishing, particularly in the suffix-mapping dialog box.

The Last Word

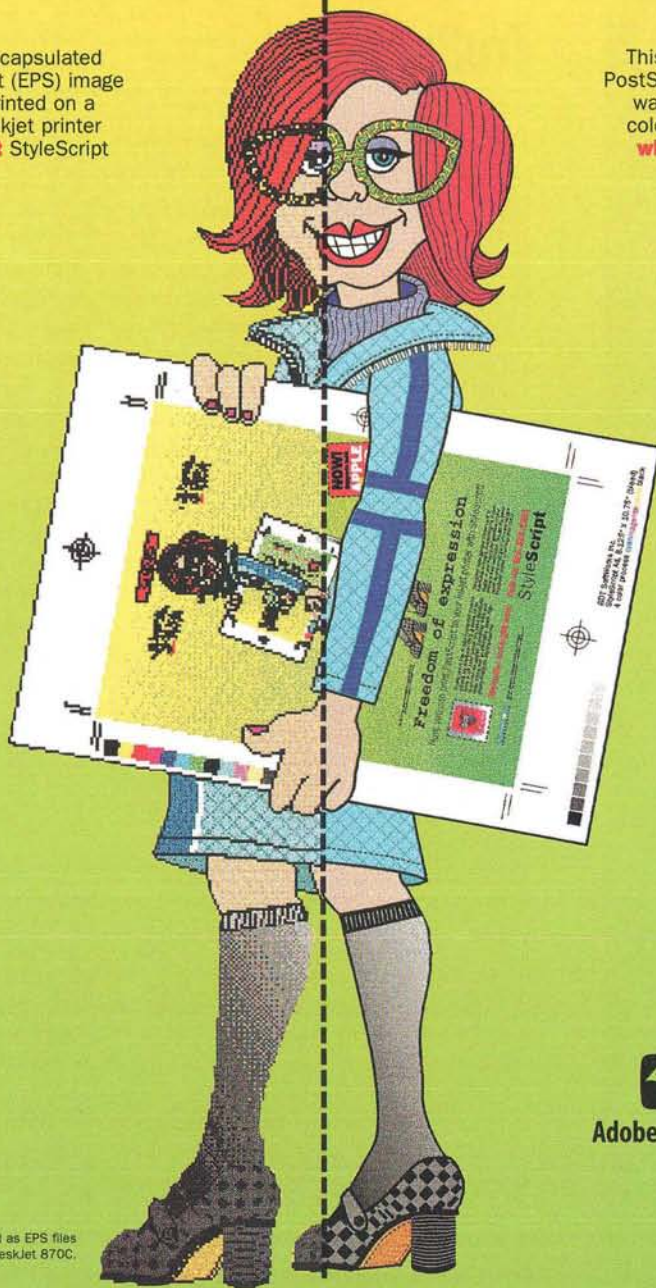
Given a choice between eye candy and performance, any sane server administrator will choose the latter. The new WebStar delivers where it counts, and continues to shine brightly in the solar system of Mac-based Web sites.—JIM HEID

RATING: ★★★★★/7.7 **PROS:** Excellent performance; expanded features; lots of bundled goodies. **CONS:** Weak manual; minor plug-in bugs; crude user interface. **COMPANY:** StarNine Technologies (510/649-4949, <http://www.starnine.com>). **LIST PRICE:** \$795.

compare

This Encapsulated
PostScript (EPS) image
was printed on a
color inkjet printer
without StyleScript

This Encapsulated
PostScript (EPS) image
was printed on a
color inkjet printer
with StyleScript



NOW!
Supports both
**APPLE
& HP**
inkjet printers



Adobe PostScript

The above images were created in Illustrator, exported as EPS files
into PageMaker and printed on an HP DeskJet 870C.

Freedom of expression

Now, you can print PostScript to your inkjet printer with StyleScript!



Finally, you're free to print PostScript! If you're printing any PostScript (EPS) graphics on an Apple or HP inkjet printer, you need StyleScript to *smooth* the jaggies. StyleScript turns your inkjet printer into an affordable, sharp, high-quality PostScript printing machine.

StyleScript uses genuine Adobe Level 2 PostScript software, maximizing the output quality of your PostScript graphics to your printer's best resolution. You get the same result as you would get if you were using a PostScript printer — for less than \$150!

Website: www.gdt.com

Call us: 800.865.5501

GDT SOFTWARES
INCORPORATED

© 1996 GDT Software, Inc. PHONE: 604.473.3600 FAX: 604.473.3699
All product and corporate names are trademarks of their respective companies.

StyleScript®

Circle 42 on reader service card

Daily News

WHERE

WERE YOU

ON

January 24, 1996?

Industry News

Mac OS 7.6 Ships

System upgrade includes Talking Alerts, OpenDoc support

Mac OS 7.6, also known as Harmony, ships to retailers today. It should be available to end users within a week, according to Apple Computer.

For an evaluation of the new features, see "www.macworld.com/daily/daily.982.html> Should You Buy Mac OS 7.6?"

[more](#)

Macworld Online.
The **latest** news
in the Mac market.

www.macworld.com

Reviews

TruPhoto

DIGITAL PRINTER CREATES INSTANT
SNAPSHOTS, DELAYED GRATIFICATION

NO MATTER HOW MUCH INTEREST and excitement I generate when I'm preaching the benefits of digital cameras, I know it's just a matter of time until I hear the dreaded question, "So how do you print these things?" And no matter how cheerfully I explain that a virtual slide show consumes no shelf space and its colors are brighter and more vivid, the conversation comes to an abrupt end as my listener loses interest and tactfully changes the subject.

Thank goodness for a new group of snapshot printers, including the Panasonic TruPhoto. Costing less than most dig-



Snapshot-Quality Printer The TruPhoto printer invariably exaggerates the amount of cyan (as shown in this output sample) even after 20 minutes of meticulous corrections in Photoshop.

ital cameras, the TruPhoto outputs 3½-by-5-inch continuous-tone images for about 75 cents a shot. That's still relatively expensive compared with traditional film photos, but it's significantly more affordable than comparable dye-sublimation output.

The TruPhoto prints on light- and heat-sensitive paper with a resolution of 144 pixels per inch. Having no need for halftoning or dithering, the printer creates the fluid transitions associated with standard photos. This isn't to say TruPhoto images are indistinguishable from 35mm prints—the garish colors and gummy detail are a dead giveaway—but the output is a darn sight bigger and better than Polaroid-type instant snapshots, even if producing it is slightly more laborious.

The TruPhoto takes almost four minutes to print an image, making a separate pass for the yellow, cyan, and magenta exposures. I spent most of my time color-correcting pictures, though. A typical

uncorrected digital photograph—which looked fine on my calibrated monitor—came out too dark, with soft focus and an extreme cyan cast. Panasonic's printer driver offers gamma controls for adjusting the amount of primary colors, but they go undocumented and are ultimately insufficient to achieve reliable results. Although it took a bit of technical know-how, I found it easier to create adjustment layers in Adobe Photoshop that simulated the printer's color peculiarities.

The printer also has a habit of making JPEG compression artifacts more pronounced than they appear on screen (most printers produce the opposite effect). On a more positive note, once you achieve a satisfactory print, it's yours for keeps. I placed a few prints in direct light on a windowsill, and a month later, I saw no evidence of fading, unlike prints from other products, which deteriorate in a matter of days. The prints are likewise impervious to scratching or tearing.

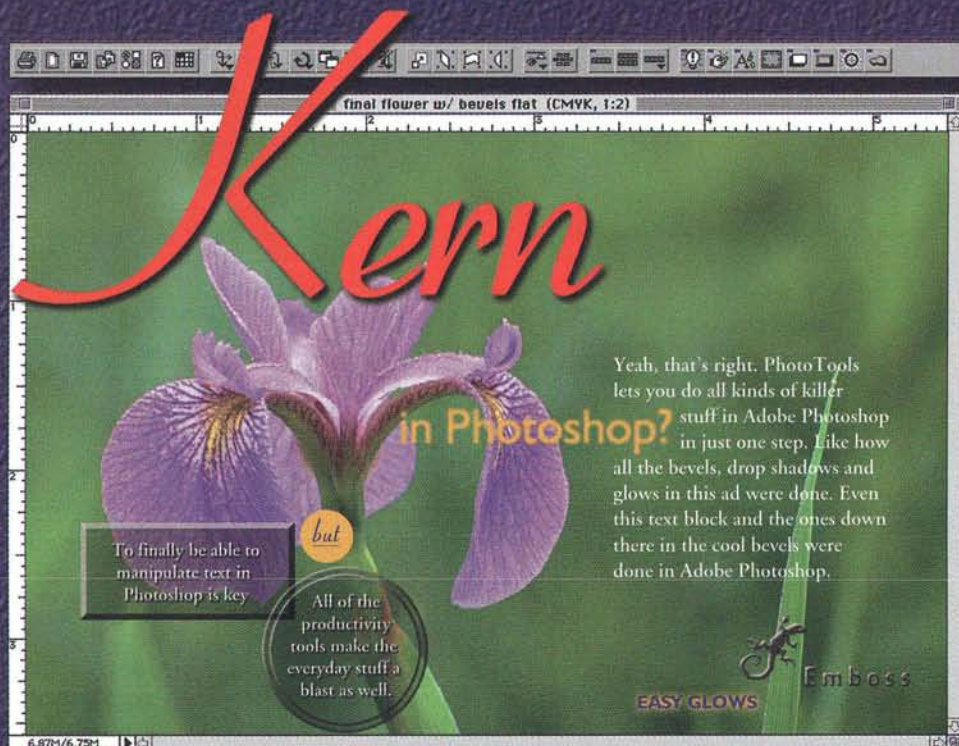
The TruPhoto is a serial printer with two ports, one for PCs and the other for the Mac. When I first received the printer, I used its Mac port, but after encountering a series of printing errors that required me to reboot the printer *and* my computer—a problem Panasonic claims is unique to a few (as yet undetermined) models of Macs—the company shipped me a conversion cable for the printer's PC port. This work-around ended my reboot errors but made it impossible to start one print job until the other had completely finished. None of this was debilitating, but it *was* pretty irritating.

The Last Word

Once I got the hang of the TruPhoto and learned to anticipate its idiosyncrasies, I was able to churn out about ten pictures an hour. Sure, it takes less time to drop off some film at a photo lab, but with digital pictures you know what the picture looks like before you print. Despite its errors and oddities, the TruPhoto is a reasonably capable first attempt that has a world of potential.—DEKE MCCLELLAND

RATING: ★★ ★/5.7 **PROS:** Affordable, continuous-tone output; prints resist fading. **CONS:** Middling color fidelity; exaggerates compression artifacts; some design flaws. **COMPANY:** Panasonic Interactive Media (408/653-1888, <http://www.panasonic.com>). **LIST PRICE:** \$479.95.

PHOTOTOOLS MAKES PHOTOSHOP SO PRODUCTIVE YOU'LL HAVE PLENTY OF TIME LEFT TO KERN.



QX-Tools' award-winning XTensions for QuarkXPress lets you create effects, control layers, resize objects, apply styles and more. Mac.



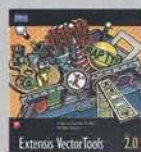
Fetch organizes your graphics files into an on-line browsable catalog for quick and easy access, regardless of the application used to create them. Mac.



CyberPress converts QuarkXPress documents into HTML format for the WWW. Includes the award-winning Adobe PageMill 2.0. Mac.



PageTools' award-winning fifteen plug-ins give you PageMaker's most-requested features, like character styles and scaling multiple objects. Mac & Win.



VectorTools' plug-ins for Illustrator and Xtras for FreeHand is an indispensable collection of tools that feature color control, object styles, libraries and more. Mac.



Intelligence for Photoshop and PageMaker automatically and intelligently enhances the quality of single or multiple images. Mac & Win.

<http://www.extensis.com>

ORDER PHOTOTOOLS (MAC & WIN)
ONLY \$99.95
1-800-796-9798

Pinch yourself, this isn't a dream (more like a dream-come-true). Thanks to the Extensis PhotoTools collection of plug-ins, the time has finally arrived when you can create and format text in Adobe Photoshop. We don't mean typing a couple of words, we're talking multiple text blocks, character styles, font sizes, leading, scaling — you know, all the stuff you expect to do with type.

In true Extensis form, we didn't stop at text — we wanted to make everyday Adobe Photoshop effects even easier too. So you can do nifty things like create drop shadows, glows, embosses and bevels in a single step using screen previews and zoom controls. Also, automatically enhance RGB photos with one click and create smart toolbars for quick access to menu commands. It even has an outstanding price (\$99.95) and a 60-day money-back guarantee.

Don't take our word for it, find out for yourself how amazing PhotoTools is. Call 1-800-796-9798 to order your copy or download a free trial from our web site at <http://www.extensis.com>. And quit pinch-ing yourself, you'll get bruises.

Extensis

Extensis Corporation, 1800 SW First Avenue, Suite 500, Portland, OR 97201 • 503-274-2020 • Fax: 503-274-0530

Circle 13 on reader service card



© 1996 Extensis Corporation. All rights reserved. The Extensis logo, VectorTools, PageTools, CyberPress, Fetch, PhotoTools and QX-Tools are trademarks of Extensis Corporation. Intelligence is a trademark of DPA Software. Third-party trademarks are property of their respective holders.

Sources: 1087

Macworld Online

Software Collection

You could
use some
FREE
software!

Picks o' the Week

As of: 1/17/97

[http://www.macworld.com/
software/index.shtml](http://www.macworld.com/software/index.shtml)



Terminal Velocity Demo

Rock through the skies with one of the most popular space-age flight simulators available. It offers fast 3D texture-mapped graphics, full 360-degree flight movement and 7 weapons of extraordinary destruction.



GifBuilder v0.5

Yves Piquet's scriptable utility lets you create animated GIF files easily. Input several common image formats into GifBuilder, then snazz up your web site with the resulting GIF89a files, which display multiple images.

Macworld Online.
The hottest software
for your Mac.

www.macworld.com

Reviews

Globetrotter 1.1

HTML... WHO NEEDS IT?

AKIMBO SYSTEMS' PHILOSOPHY—that if you don't need to learn PostScript to use a laser printer, you shouldn't need to learn HTML to publish Web sites—is apparent in Globetrotter 1.1.1. This Web authoring tool shields you entirely from HTML; you work in a WYSIWYG page view, and the program generates HTML code after the pages are complete. Unfortunately, Globetrotter's stability problems outweigh this innovative approach.

Akimbo has built a lot of intelligence into Globetrotter. If you enter a partial URL, for example, the program completes it and turns it into a link; it also updates links automatically when you rename a document. A nice set of button styles makes it easy to create navigation bars. If you use symbols or a special font, Globetrotter either inserts the HTML 3.2 **** tag or converts the text to a graphic. The program supports tables (though not frames), and you can also include multimedia files or Java applets in your site. To add an image, simply drag it in; the program converts it to a GIF or JPEG and scales it appropriately. Image maps (either client-side or server-side) are a breeze to create, as are forms—the program automatically creates a CGI script in Perl to handle a form's information.

Because the program uses word processor-like style sheets, you can change a style in one place and have it propagate throughout your site. Different sections automatically become separate Web pages. Globetrotter can also track additions to your pages and insert a "New!" icon next to them. And when you're ready to unveil your pages, Globetrotter FTPs the entire site to your server.

Despite all these glorious-sounding capabilities, Globetrotter has serious problems. First, Akimbo states that the program is incompatible with the Modern Memory Manager (MMM) component of the Memory control panel in systems prior to 7.5.5. On my Power 100, even with System 7.5.5 installed, I needed to turn MMM off to get Globetrotter to run without crashing. I was also unable to run the program if I had Now Menus and Now WYSIWYG Menus installed. Akimbo's tech support, though responsive, was unable to reproduce my prob-

lems. And surprisingly for a new release, Globetrotter isn't Power Mac native.

Because Globetrotter can't import existing HTML documents, it's better suited to page creation than to maintenance. Akimbo suggests re-creating your pages by dragging graphics and text from Netscape's browser window to a Globetrotter window, then reformatting the page. Not only is this process tedious, it tends to bring Globetrotter crashing back to the Finder with a type 25 error. This ungraceful behavior also occurred when I tried to bring in large images.



Page Previewed Globetrotter lets you create pages in a near-WYSIWYG fashion (left), then view the rendered page in a browser window (right).

The program can make collaboration on a Web site difficult; its HTML-less approach assumes that one person will have control over the entire site, which may not be the case in the real world. Globetrotter also comes with extensive documentation but no tutorial, virtually assuring that new users will miss key aspects of this feature-rich program.

The Last Word

The ideas behind Globetrotter are sound, particularly with Web authoring moving toward site-oriented, content-focused programs such as Net Objects' Fusion and the recently announced CyberStudio from GoLive. Unfortunately, Globetrotter's execution doesn't quite match its conception. The stability problems alone are enough to persuade me to wait for the next version before I trust my sites to Globetrotter.—TOM NEGRINO

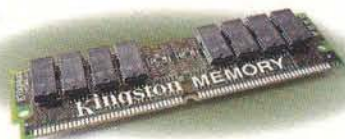
RATING: ★★/4.1 **PROS:** Shields user from HTML; smart forms, tables, and styles; automatic link management. **CONS:** Buggy; incompatible with common extensions and system software; no tutorial. **COMPANY:** Akimbo Systems (617/776-5500, <http://www.akimbo.com>). **LIST PRICE:** \$99.



IF YOUR MEMORY FAILS WHO CARES WHAT'S ON YOUR POWERBOOK?



Your screenplay. Your stock portfolio. Images from your trip to the Himalayas. There's a lot of valuable stuff on your PowerBook. So why not use the finest components to preserve it? Kingston® memory. At Kingston, we test every cell on every chip on every module. (On a 16 megabyte module, that's 128 million cells.) Since every PowerBook has its own unique memory requirements, we design



and test each module specifically for the model in which it will be used. Together, these grueling procedures have helped us become a select Authorized Apple RAM Developer. To find the specific Kingston memory for your PowerBook, just call (800) 259-8965. And before you put anything else on your PowerBook, be sure to put in some Kingston memory.

Kingston
TECHNOLOGY

For more information call us at (800) 259-8965



Visit our Web site: <http://www.kingston.com/mw.htm>

Kingston Technology Company, 17600 Newhope Street, Fountain Valley, CA 92708 USA, (714) 435-2600, Fax (714) 435-2699. © 1996 Kingston Technology Company. Kingston is a registered trademark and Computing Without Limits is a trademark of Kingston Technology Company. All rights reserved. All other trademarks are the property of their respective owners. PowerBook is a registered trademark of Apple Computer, Inc.

Circle 201 on reader service card

Bolero

WEB-SITE LOGGING FOR PROS

ONE OF THE CHALLENGES FACING Internet-oriented businesses is figuring out which communications elements are most effective on the Web. A logging, reporting, and analysis tool can help you understand what happens at your site, providing information such as where visitors go, how much time they spend in each area, and how they got there. One such tool is EveryWare's Bolero 1.0, a professional-level program for making large-scale Web sites more effective. It assumes some knowledge of databases, and it's not cheap, but at the moment it's the best way to monitor Web-site activity.

Bolero logs user activities at a site into an SQL file that you can import into an industry-standard database, such as Butler SQL, Oracle, Informix, Sybase, or FoxPro. Although that approach makes data management more complex, it gives Bolero two important advantages over programs like WebThreads and Bien Logic's SurfReport, which log activities into a text file. First, the data is organized into hourly, daily, weekly, and monthly SQL records that you can search, sort, and report in a variety of for-



Who Did What? Bolero displays a continuously updated site report in a browser window.

mats using the forms included in the package (see "Who Did What?"). Second, because the database includes the URL trail of everyone who accesses your site, you can make frequent changes in the site's presentation details—such as frames, text elements, graphics, and JavaScript interactivity—to see how users respond.

The database's richness means you won't simply install Bolero and forget about it; at both of the high-volume sites I tested, the database and reporting details were tinkered with almost every day. Bolero makes it easy to track which external links are leading to hits on your site, for example, so you can determine which search sites are worth advertising on.

But Bolero is a professional-level tool that assumes the user is familiar with SQL databases and ODBC conventions and is managing a WebStar server that's getting thousands of hits per day to justify the cost. The documentation, therefore, is not a tutorial or quick-start guide, but rather an administrator's manual that demands a working knowledge of EveryWare's Butler SQL database and Tango query tool (the necessary parts of which are bundled with Bolero).

The Last Word If you're a Web-site administrator who wants to gather all the demographics you can from your site, Bolero is the best tool available. If your background is in HTML and Java rather than SQL and database reporting, though, Bolero will involve a fairly long learning process.—CHARLES SEITER

RATING: ★★★★★/7.0 **PROS:** Complete, flexible tool set. **CONS:** Can be difficult to master; prohibitively expensive for smaller sites. **COMPANY:** EveryWare Development (905/819-1173, <http://www.everyware.com>). **LIST PRICE:** Bolero Bronze \$995 (single WebStar server); Bolero Silver \$1795 (unlimited WebStar servers); Bolero Gold \$4995 (unlimited WebStar servers; supports direct links to Oracle and SQL Server databases).

There's a faster, cleaner



Houston, we have liftoff. Presenting the Apple® Internet Connection Kit. Everything you need to blast onto the Internet, browse the web, and send e-mail in one simple to install, no hassle package. So what do you get? Well, the kit comes complete with Netscape Navigator™ 3.0 and Claris Em@iler™ Lite software, plus QuickTime® VR Player, RealAudio™ Player, Macromedia Shockwave, Adobe™ Acrobat™ Reader, Farallon's Look@Me, and a host of other software that installs easily in just minutes. As if that weren't enough, Apple Internet Dialer will even help you select an Internet Service Provider, and set up an account with just a few clicks of your mouse. And if you have any problems, Apple Guide online help can answer any Internet related questions you may have —

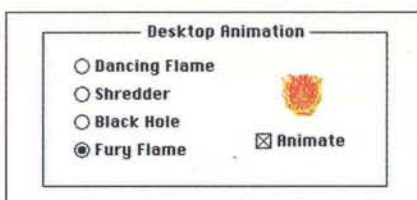
Burn It

INEXPENSIVE BUT FLAWED SECURITY

YOU MIGHT NOT EXPECT MUCH value in a package of four utilities priced under 30 bucks, and when it comes to software you generally get what you pay for. Synchronys Software's Burn It 1.0 is no exception. It offers a convenient way to obliterate sensitive documents and protect the files you want to keep, but unfortunately its usefulness is limited to its core file-deletion capability, and its bundled options are less than stunning.

Most folks know that emptying your Mac's Trash isn't enough to destroy a sensitive document—you can still retrieve trashed documents with file-recovery programs until you overwrite them with another file. If you want the Mac's equivalent of a paper shredder, you need something more, and Burn It fits the bill—for this specific task.

Burn It erases sensitive documents so that file-recovery utilities such as Norton Utilities can't find them. A bundled utility, KeyDisk, purports to lock sensitive documents away from unauthorized prowlers. Two additional programs, Hide-it and Show-it, shield folders and files from prying eyes, and make them visible again.



Your File Will Self-Destruct . . . Burn It lets you display one of a variety of amusing animated icons as it destroys your sensitive documents.

Burn It works as advertised. A user-selected animated icon appears when documents are wiped from your drive (see "Your File Will Self-Destruct . . ."). I was unable to recover any documents destroyed with this program.

Burn It's bundled utilities are another story. Using KeyDisk, you create a password for an encrypted document, or have an encryption key recorded on a floppy disk, which you insert to unlock the file. Although documents are essentially protected, the level of security isn't terribly robust. A programmer managed to open a protected test document in 30 minutes flat, not by cracking the encryption algorithm—a relatively difficult process—but by simply finding the hidden encryption key within the file itself. Synchronys representatives stress that KeyDisk isn't designed to with-

stand an attack by a professional hacker, emphasizing that the Key Diskette feature—where the encryption key is stored on a separate floppy—provides a greater level of protection, and that future versions of the software may allow users to choose to remove the key altogether.

Nor was Hide-it very useful or robust. Although you can make any document or folder invisible, you can still see the file plain as day with programs like Apple's ResEdit and PrairieSoft's Desktop.

The Last Word Considering its low price, Burn It delivers an economical solution to very basic security needs, but Norton Utilities already has a file-shredding program that works as well or better. Since file trashing is the core of Burn It, I didn't give much weight to its other utilities when I was determining its score, and neither should you—consider them useful only until you can buy a more sophisticated security package.—GENE STEINBERG

RATING: ★★★/6.0 **PROS:** Low cost; easy installation. **CONS:** Unsophisticated file protection; file-hiding features easy to bypass. **COMPANY:** Synchronys Software (213/340-4100, <http://www.synchronys.com>). **COMPANY'S ESTIMATED PRICE:** \$29.95.

way to get on the Internet.



like, "This was so easy, why didn't I do this sooner?" The days of plodding along with complicated connections are over. With Apple, getting on the Internet now happens at warp speed. Visit your nearest Apple reseller, or order by calling 1-800-950-5382, ext. 1401. Apple. The power to be your best.

In Canada please call 1-800-361-6075 ext. 245. ©1996 Claris Corporation. All Rights Reserved. Apple, the Apple logo and QuickTime are registered trademarks of Apple Computer, Inc. Claris Em@iler is a trademark of Claris Corporation. Adobe and Acrobat are trademarks of Adobe Systems Incorporated or its subsidiaries and may be registered in certain jurisdictions. Netscape Navigator is a trademark of Netscape Communications Corporation. RealAudio is a trademark of Progressive Networks, Inc. All other trademarks are property of their respective owners.



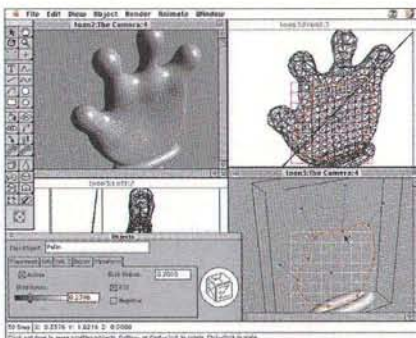
Extreme 3D 2.0

3-D DESIGN PROGRAM GETS SUITE-ER

THE RECENT RELEASE OF FREEHAND Graphics Studio 7 featured brand-new versions of several Macromedia programs, with the conspicuous exception of Extreme 3D. Version 2.0 of this excellent modeling, rendering, and animation package is now available—separately or as part of the \$449 suite (*Reviews*, February 1997)—and it was worth the wait.

Among the improvements in Extreme 3D 2.0 are new tools and controls for greater modeling and rendering versatility. One of those tools generates user-defined particles from any object, letting you create a variety of effects—from tree leaves to running water to fireworks. Another new tool lets you build user-definable globular shapes from outlines (see “Blobs on Demand”); you can combine multiple outlines to create complex, flowing organic shapes, or draw out individual globules from a shape to produce an animated effect.

Extreme 3D's Materials browser now has transparency and luminosity controls for all basic shaders, and you can define the effects by color values or bitmaps. The program lets you edit ambient lights in the



Blobs on Demand Extreme 3D's Metaform tool lets you create free-form, organically shaped objects from simple outlines (lower right), as in this sample file of a toon's hand. You control the blobbiness of the rendered object (top left) using a slider in the Objects browser (lower left).

Lights browser, and adds controls for shadow resolution and fuzziness to spotlights and distant lights.

With the new version you can choose either QuickDraw 3D or Extreme 3D's own interactive renderer. The fast Phong renderer (for final rendering) now includes controls for gamma correction; it can also combine material transparency with shadows to produce effects normally possible only with ray tracing. In addition, Macromedia has rewritten Extreme 3D's render-

er to take advantage of the Power Mac's floating-point processing. While that makes for more efficient rendering, it also makes the program Power Mac-only.

Version 2.0 incorporates the Macromedia Open Architecture and Information Exchange protocols, which brings a common extensions architecture to the programs in the suite and improves file transfer among them. In addition, the new version supports several Internet file formats (GIF89a, Progressive JPEG, PNG, and xRes LRG), along with 3DMF and VRML files. You can also attach URLs to objects from within the Objects browser.

The Last Word As with any 3-D program, mastering Extreme 3D takes time—and a large RAM partition (at least 19MB to work comfortably). Nonetheless, alone or as part of FreeHand Graphics Studio, Extreme 3D 2.0 is an excellent tool for print, animation, Web, and multimedia production.—CARLOS DOMINGO MARTINEZ

RATING: ★★★★★/8.1 **PROS:** Excellent modeling, rendering, and animation tools; built-in cross-platform, distributed rendering. **CONS:** Pro-level RAM requirements. **COMPANY:** Macromedia (415/252-2000, <http://www.macromedia.com>). **COMPANY'S ESTIMATED PRICE:** \$399.

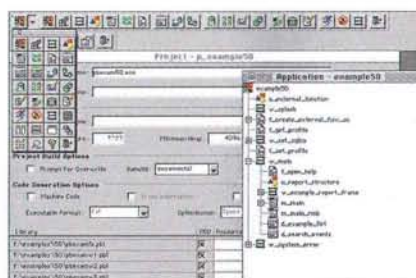
PowerBuilder 5.0

KEY CROSS-PLATFORM DATABASE TOOL

THOUGH ACI US 4TH DIMENSION and Claris FileMaker Pro rule the Mac small-office market, large-scale databases from Oracle, Sybase, Informix, and DB2 run the show in big business. With PowerBuilder 5.0, PowerSoft (now part of database giant Sybase) puts the Mac's large-scale SQL database application development skills on nearly equal footing with those of Unix and Windows NT systems.

PowerBuilder offers an icon-driven system for SQL database application generation, within a program-building format reminiscent of Mainstay's VIP-C. Its PowerBar and PowerPanel provide numerous tools for building query forms and generating reports, but what makes PowerBuilder popular is the amount of power in each tool—used together, the Data Window painter and the Query painter are sufficient to generate fast report forms loaded with reusable, easily modifiable objects for exhibiting selected SQL data.

PowerBuilder solves the sometimes vexing problem of connecting to existing databases with a giant set of canned inter-



Elementary With PowerBuilder's complete set of tool icons for application-element objects, you can build and test simple applications in hours, not days.

faces and connection routines. PowerBuilder also ships with libraries of .pbl files covering a wide range of standard business query examples; studying the provided examples and making minor tweaks would nearly certify you as a business database guru. Although you must understand a certain amount of Unix and Windows to grasp PowerBuilder's organization and file naming, you can run your Mac-developed applications on other platforms without a hitch—a big plus in the corporate world.

Version 5.0 includes PowerSoft's latest work in defining *distributed objects*; any object in an application can reside on any computer on the network. PowerBuilder developers can investigate performance

improvements by trying different distributions of application objects instead of the typical arrangement—interface and logic code on the client and data on a server.

PowerBuilder 5.0 recognizes that the World Wide Web has changed the client-server landscape forever. You can save displays as HTML files, and the new DataWindow plug-in allows any Web browser to view PowerBuilder reports. PowerBuilder's Mac version, however, still lacks Web.pb, a key part of the program's Internet tool kit—an odd oversight given the Mac's strong Web position.

The Last Word PowerBuilder 5.0 is one of the few Macintosh products that supports rapid application development for large corporate database environments. Considering its scope, PowerBuilder is remarkably easy to learn and use, and requires much less attention to cross-platform detail than programming in C++ or most SQL dialects.—CHARLES SEITER

RATING: ★★★★★/7.6 **PROS:** Easy interface for generating layouts and reports; near-universal connectivity to major databases. **CONS:** Mac version lacks key Internet functions. **COMPANY:** PowerSoft (508/287-1500, <http://www.powersoft.com>). **LIST PRICE:** \$2995.

4:45^{PM}

Sending my 48 meg file to be printed.
Color calibrating? Three clicks, all done.
Traps and overprints? They all showed up.
Revisions? OK, so I'm a little obsessive.
The comp? It actually matches the screen.

5:00^{PM}

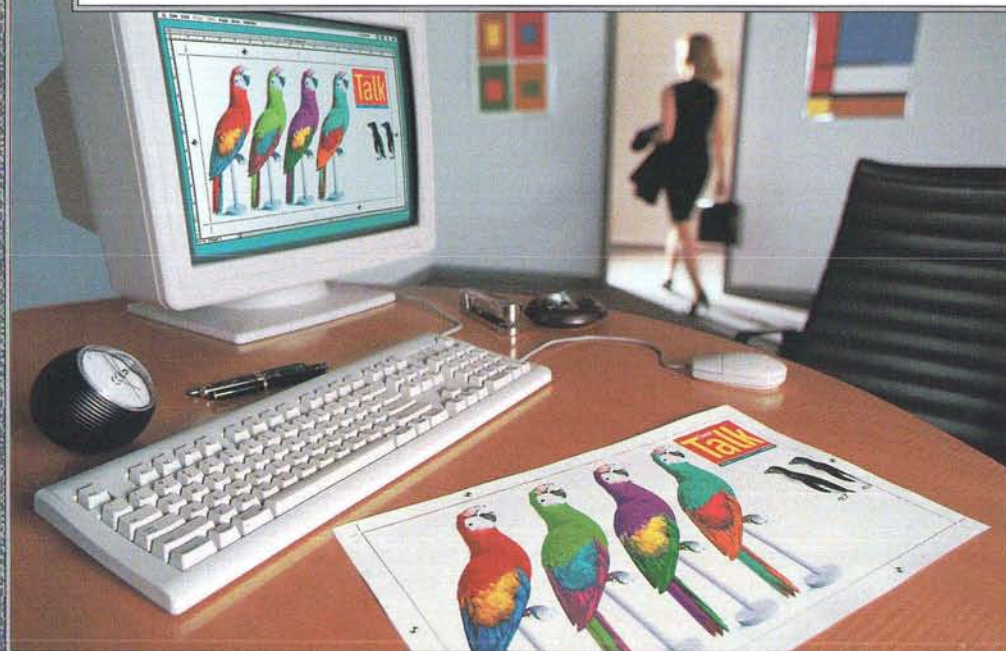
What's next? I'm out of here.

XEROX® The Document Company®, the stylized X and the identifying Xerox product names and numbers herein are trademarks of XEROX CORPORATION. DocuColor 40 is shown with optional sorter. Scien, EFI Fiery, Colorbus Cyclone and Splash are trademarks of their respective owners. 36 USC 380.

6 ppm: **The Xerox MajestiK 5765 Digital Color Copier/Printer**

9 ppm: **The Xerox Regal 5790 Digital Color Copier/Printer**

40 ppm: **The Xerox DocuColor 40 Digital Color Production System**



You demand color that's sharp, fast, and consistent. Xerox has more ways to meet those demands. The Regal Color Copier/Printer handles transparencies, duplex copies as well as heavyweight coated stock. You can colorize originals and print Pantone-licensed colors. Configured with EFI Fiery, Colorbus Cyclone or Splash color servers, you can print from a PC or a MAC network. In fact, no one has more certified front ends to fit



your needs. Our MajestiK Series also adds to your color choices. But if speed, quality, and volume are your needs, as a color copier/printer, the Xerox DocuColor 40 has no peer. At 40 ppm, its one-pass technology delivers benchmark speed and superior quality. See how the Xerox color family meets your needs. To learn more, visit our Web site at <http://www.xerox.com>. Or give us a call at 1-800-ASK-XEROX, ext. 487. **Xerox Color. The Color Of Business.**

**THE
DOCUMENT
COMPANY
XEROX**

Circle 100 on reader service card

MovieTools 1.5

SIMPLE, PRECISE QUICKTIME
MOVIE PROCESSING

NOT ALL TASKS CALL FOR A BLOATED Swiss Army Knife of a program; sometimes a sharp pocketknife is all you need. At least that's the theory behind McQ Software's MovieTools, a set of utilities for carving QuickTime movies into broadcast condition. While MovieTools has many features that are either built into or accessible from Adobe Premiere, the program takes much of the work out of preparing basic QuickTime effects, animations, and composites.

A classic example of a repetitive task that would benefit from batch processing is compensating for the digital resolution variations between computers and videotape. Because some nonlinear editing systems and programs are designed to work with 640-by-480-pixel video and others with 720 by 486, editors often encounter an annoying discrepancy in picture size. MovieTools automates the process of stretching or shrinking the image between 13-inch RGB monitor resolution and digital broadcast resolution with minimal distortion (it also works with PAL and film resolutions).



Ready for Prime Time If you find yourself with a QuickTime movie that isn't quite ready for prime time because of aspect ratio or interlacing problems, MovieTools can get your pictures in shape.

MovieTools' other talents include video interlacing between two QuickTime movies (for viewing with LCD stereoscopic glasses), deinterlacing, alpha-channel extraction, chroma key compositing, and half a dozen video effects, including one that simulates stressed celluloid. Another useful feature converts animations from 24 frames per second to 30 fps, allowing video tests to be previewed at the correct playback rate.

McQ has also released an updated version of MoviEffects, a \$59.95 utility aimed at multimedia rather than broadcast producers. MoviEffects 1.2 includes motion and transition effects that MovieTools doesn't, but it lacks broadcast-specific procedures. One of its useful batch-processing

features is a Movie Assembler mode that compiles up to 600 clips; another nice addition is the ability to animate a series of static title screens into a scroll or crawl, an effect that higher-priced products overlook.

Most conspicuously missing from both MovieTools and MoviEffects is the ability to apply multiple procedures to a movie in a single pass. Another gripe is the absence of user-definable resolutions in addition to user-definable compression settings, a feature that would make the applications far more flexible for different delivery formats. Compatibility with Adobe Photoshop plug-ins would also be a welcome addition.

The Last Word While I admire McQ's straightforward approach to QuickTime movie processing, I confess that I crave a few more blades on my knife. If you're hoping to find the DeBabelizer of QuickTime video utilities, MovieTools may leave you underwhelmed.—AVI HOFFER

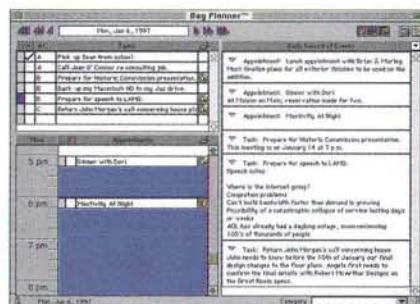
RATING: ★★/5.4 **PROS:** Useful batch-processing features; alpha-channel processing; stereoscopic interlacing and deinterlacing. **CONS:** No support for multiple-process scripts; no variable resizing of image resolution. **COMPANY:** McQ Productions (415/348-1344, <http://www.mcqpro.com>). **LIST PRICE:** \$195.

Ascend 4.0

AN INFORMATION MANAGER ONLY THE
FRANKLIN FAITHFUL COULD LOVE

THE RELEASE OF ASCEND 4.0 MARKS the revival of a personal information manager that went unrevised for nearly three years. But although Franklin Quest has done a good job of integrating Ascend more tightly with its line of popular paper-based organizers, the Franklin Day Planners, it failed to improve the basic PIM functionality enough to make Ascend 4.0.1 competitive with programs such as Claris Organizer and the Now Up-to-Date/Now Contact combination.

The Franklin time-management philosophy revolves around stating values, setting goals, and scheduling tasks to achieve those goals. Ascend replicates the look of the Franklin Planners with a Day Planner window and a series of Values and Goals windows (see "Day in a Nutshell"). The CD-ROM offers tools for creating and prioritizing tasks, along with inspirational daily quotes. With one click, the program can now launch your e-mail program and create a blank message. And Ascend 4.0.1 improves on the earlier versions' printing abilities by supporting



Day in a Nutshell You can see everything about your day in Ascend's Day Planner window. Detailed notes on tasks and appointments appear in the useful Daily Record of Events; you can also add thoughts, journal entries, and goals.

all the Franklin Planner paper sizes and many of the system's specialized forms.

But while Ascend fits well into the Franklin family, it falls short in comparison with other PIMs. One shortcoming is the absence of a system menu that lets you access and add contact and schedule information from within any application; you must have Ascend open to get to your data. The program must also be running (at least in the background) for event alarms to work. Although you can link a contact to an event, you have to go through a cumbersome dialog box instead of simply dragging

a contact onto the event in your calendar. This overreliance on dialog boxes extends throughout the product and is just one of Ascend's interface problems; you're also forced to switch between mouse and keyboard, deal with annoying alerts, or click very precisely on a screen object.

Most annoying is the lack of data-entry aids. Users have come to expect automatic capitalization of words in names and addresses, pop-up menus for state names, and formatting of phone numbers with parentheses and hyphens. Ascend has none of these features. You can't even use more than one file with the program, and the data file must be named ASCENDDB for Ascend to access your information.

The Last Word If you already use a paper-based Franklin Day Planner, you'll probably find the transition to the electronic version seamless. But because Ascend lacks so many of the features found in most other PIMs, it's simply not a compelling choice for the average user.—TOM NEGRINO

RATING: ★★/4.2 **PROS:** Works adequately as an adjunct to Franklin Day Planners. **CONS:** Virtually no data-entry aids; awkward interface. **COMPANY:** Franklin Quest (801/975-1176, <http://www.franklinquest.com>). **LIST PRICE:** \$99.95.

"They thought my new Multipath Back-UPS[®] Office[™] was just a big surge suppressor – then the lights went out."

Back-UPS Office's Internet Ready FastModem
Protection prevents surges from damaging internal & external modems, motherboards, input/output cards, and other system components.

Circuit breaker provides protection in the event of an overload or short circuit; no fuse, no hassle.

Recessed Master On/Off Switch prevents accidental shut-offs and conveniently controls power to the entire connected system.

Convenient BlockSafe[™] outlet spacing can accommodate all size plugs, including large transformer blocks.

LIFETIME EQUIPMENT PROTECTION \$25,000

Guaranteed protection against all power problems, on all power paths, for Macs and peripherals.

Back-UPS Office has User-replaceable Batteries that can be easily swapped out, saving time and expense; no need to return to the factory for service. Batteries last 3-6 years under normal usage.

Full Time Surge Protection

Battery Power Supplied

APC
AMERICAN POWER CONVERSION
Back-UPS

At last, a safe place to plug everything: Multipath Back-UPS Office for Mac workstations and peripherals



Facing the darkness is hard, but inevitable: You have a better chance of winning the lottery than of escaping power problems. They're the single largest cause of computer data loss and hardware damage.

Back-UPS Office provides reliable power for your entire system. Instantaneous battery backup ensures uninterrupted operation of your CPU, monitor and an external storage device. Full-time surge suppression and site-wiring fault protection spreads a true Multipath safety net under any remaining integrated peripherals, like modems, printers, faxes and phone systems. Back-UPS Office also provides convenient BlockSafe[™] outlet spacing to handle all size plugs – even large block transformers.

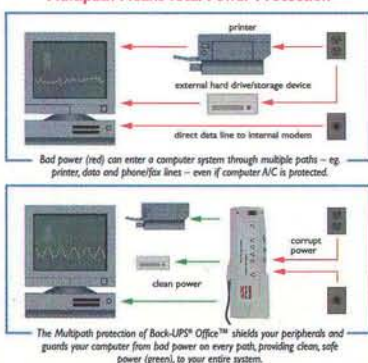
Unique Multipath protection keeps your Mac and data safe

Plugging a phone line into your computer doubles your vulnerability to power



problems; add any peripheral, and it triples. Even if your AC power-line is shielded, when a surge hits an unprotected peripheral, it can blaze down serial and data lines, and toast your expensive Mac.

Multipath Means Total Power Protection



Multiple peripherals and data lines to and from your system are vital, but dangerous. Without them, you can't do your job. However, if a power sag makes your modem drop the line while you're downloading from the Internet, or locks your keyboard before you've saved work, you lose time, money and spend another late night at the office to meet your deadline.

Back-UPS Office protects your entire system

Until now, protection for your entire system required several devices. But multi-device protection can leave you vulnerable to line noise and unwanted data glitches created by the voltage differential between outlets. Those glitches are prevented with the Back-UPS Office common voltage reference.

Back-UPS Office means true Multipath protection, clean, safe power to every

peripheral, and instant battery backup to keep your cutting edge system and O/S from crashing. It means protection for less by integrating the security of a surge suppressor with the power of a UPS, guaranteed up to \$25,000.

APC has won more awards for reliability than all other brands combined



THE MULTIPATH POWER PROTECTION ADVANTAGE	TRADITIONAL SURGE PROTECTOR	TRADITIONAL UPS	BACK-UPS OFFICE
Protected Paths			
AC	•	•	•
Data			•
Phone			•
Total Outlets	7	2	6
Number of Block Outlets			2
Protection from			
Surges	•	•	•
Spikes	•	•	•
Blackouts		•	•
Brownouts		•	•
Overvoltages		•	•
Typical Runtime in Minutes			
with Pentium 100 w/15" monitor		10	10
Battery Backup for			
PC		•	•
Monitor		•	•
Storage Devices/Zip Drives			•
Full-time surge protection for			
FastModem	•	•	•
Laser Printer	•	•	•
Speakers	•	•	•
Continuous protection for			
Internet or Network			•

Traditionally, protecting all your equipment meant buying a surge suppressor and a UPS. Even then, only your AC line was protected. New Back-UPS Office protects all paths to your equipment: Bulletproof Multipath protection

Protect yourself before you kick yourself. Get your new Back-UPS Office today or call APC for a FREE 60-page catalog!



APC
AMERICAN POWER CONVERSION
(888)BUY-APCC x 8008
<http://www.apcc.com/8008.htm>

(401)788-2777 Fax • (800)347-FAKX PowerFax
Computer: GO APC SUPPORT • Email: bsoffice@apcc.com
132 Fairgrounds Road, West Kingston, RI 02892 USA

Dept: D7

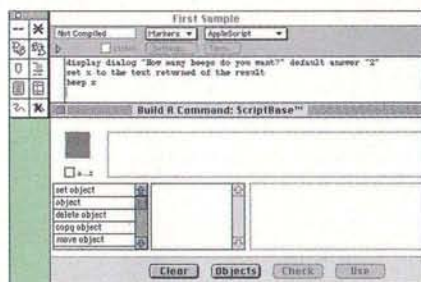
Scripter 2.0

APPLESCRIPT GETS A DAY JOB

FRANKLY, APPLESCRIPT HAS ALWAYS had a problem. Although it's a great alternative to Perl and other Unix-derived script languages, it can leave you wondering if the rewards are worth the effort needed to master it. Last year, for example, would you have found a bigger market for your skills in AppleScript, or in basic HTML, JavaScript, or Java?

Main Event Software's Scripter 2.0 takes AppleScript out of its hobby niche by showing it to be a fast, easy way to create interactive Web sites using CGIs (Common Gateway Interfaces). If you have a Mac-based Web server, you can create CGIs just by following the Mac-friendly advice in Scripter's documentation.

The new version extends the debugging capabilities of Scripter 1.0.1 (*Reviews*, March 1996), which were already the best in the industry, by integrating them with a superior Object Map browser. But the big news in version 2.0 is ScriptBase, Main Event's database for script values and objects (see "Solid Base"). It's not just the addition of ScriptBase—previously available only as a separate product—that's noteworthy; it's



Solid Base If you're going to write the dozens of scripts needed to "interactivate" a Web site, you'll appreciate the fact that Scripter 2.0 offers ScriptBase for organizing them.

the fact that you can use ScriptBase elements as "superglobals" in implementing scripts for CGIs. That means you can store elements common to all the CGIs (such as headers and error messages) in ScriptBase and reuse them in all your Web control operations.

Another point in Scripter's favor is its ties to Dogpatch, Main Event's forthcoming message dispatcher for CGIs and Apple events (if you buy Scripter now, you'll get a discount on this separate product). Because AppleScript is designed to service only one user request at a time, its performance as a CGI language can degrade when many users crowd onto a

Web server. Dogpatch load-balances the requests by routing them either to copies of your CGIs running on networked machines or to multiple copies of the CGIs on a single CPU (essentially running in a simulated multitasking mode).

Scripter 2.0 does assume that you know what you're doing. Although the documentation on Scripter's new Web-oriented uses is clearly written, it won't make much sense to you unless you're already familiar with scripting and CGIs. It would help if Scripter's floppy included a collection of examples, but you can always find them on the Web (search on AppleScript at <http://www.info.apple.com>).

The Last Word Main Event has positioned Scripter 2.0 as a key Web tool instead of an operating system convenience. With ScriptBase, it's the easiest way to make CGIs work on a Mac-based Web site, and a good alternative to Java for making a site interactive.—CHARLES SEITER

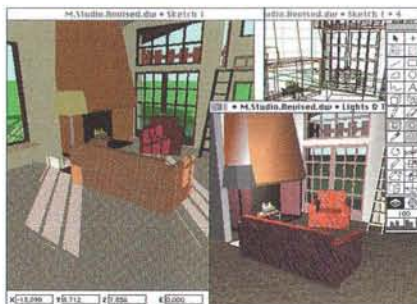
RATING: ★★☆☆/7.4 **PROS:** Improved debugger; includes ScriptBase; excellent CGI connection. **CONS:** Assumes good working knowledge of scripting. **COMPANY:** Main Event Software (202/298-9595, <http://www.mainevent.com>). **LIST PRICE:** \$199.

DesignWorkshop 1.5

COMPETENT MODELER GRAFTS ON QUICKDRAW 3D RENDERING

ARCHITECTURAL MODELERS WERE once fairly common, but today few remain to challenge high-end stalwarts Archtition and ArchiCAD. One is DesignWorkshop, a 3-D, floating-point-precision solids modeler geared toward architectural design. Version 1.5 is Power Mac compatible and adds QuickDraw 3D support for enhanced rendering. Unfortunately, this otherwise capable modeler is hampered by a clumsy implementation of QD3D. And DesignWorkshop derives only a minor boost from its Power Mac compatibility, feeling as sluggish on a 7100/80 as version 1.0 did on 680X0 Macs.

DesignWorkshop offers a competent and approachable modeling environment. To build construction blocks, walls, floors, and ceiling slabs, you extrude 2-D objects into 3-D forms you can reshape into almost any configuration. You create curved shapes, such as domes or spires, using the Arc tool with the Repeat function. Other tools slice objects, punch holes, and produce user-defined section cutaways. The Space Jump feature moves the cursor to the handles of



Night or Day? QuickDraw 3D lets you add lighting and texturing to DesignWorkshop 1.5 constructions, as in this sample model (right). Daylight and shadows (left) are available only with flat-shaded, modeling-window renderings.

selected objects anywhere in 3-D space.

DesignWorkshop's QD3D support lets you add lighting and textures to objects. Unfortunately, to see the effects, you have to open a separate, display-only Light & Textures (QD3D) window in which you can neither build nor manipulate models (see "Night or Day?"). The QD3D window doesn't automatically update modeling-window changes; this forces you to redraw the entire image and makes for slower-than-real-time rendering. And the program's daylight and shadow effects aren't available in the QD3D window.

As opposed to the standard QD3D approach, where the model is manipulated and the viewpoint is static, DesignWorkshop lets you change your viewpoint and walk around a model. This is a wise decision for an architectural modeler, but moving around a scene (the shaded modeling or QD3D window) can be painfully slow.

DesignWorkshop lets you record saved views in sequence as QuickTime movies, producing slide-show-style walk-throughs. And from the QD3D window, you can save models in 3DMF and merge 3DMF objects with the scene. However, merged QD3D files aren't introduced into the modeler; you have to align and position objects (using a QD3D modeler) at their intended scene coordinates before merging them.

The Last Word Despite an awkward implementation of QD3D, DesignWorkshop offers very competent modeling tools. It's an excellent, lower-priced alternative to high-end architectural design packages.—CARLOS DOMINGO MARTINEZ

RATING: ★★☆☆/6.3 **PROS:** Easy-to-use modeling tools; approachable interface. **CONS:** Lackluster implementation of QD3D; uninspiring performance. **COMPANY:** Artifice (541/345-7421, <http://www.artifice.com>). **LIST PRICE:** \$595.

ADOBE® Pagemaker® 6.5 ON PAPER

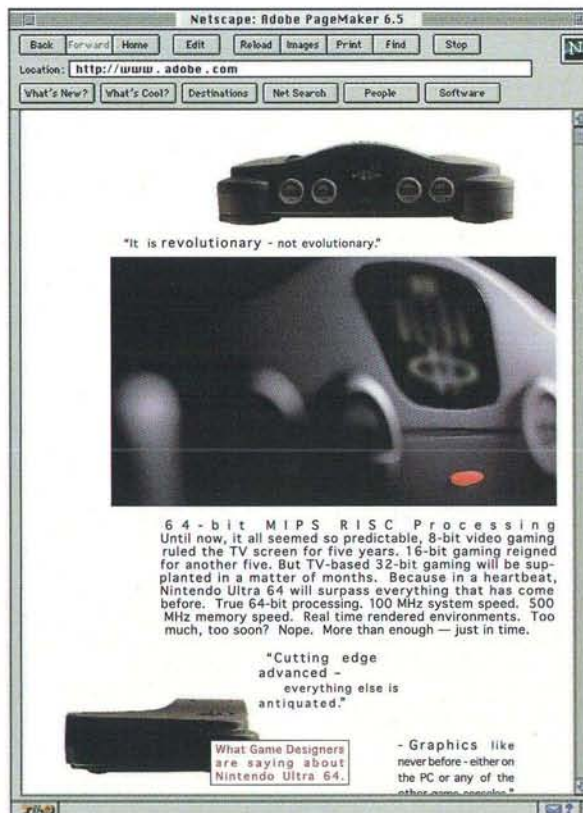


Design and art direction for the Nintendo Co., Ltd. annual report by Leimer Cross Design, Seattle. Photography by Tyler Boley.

ADOBE Pagemaker 6.5 ONLINE



One world is too small for today's documents. Which is why Adobe® PageMaker 6.5® offers you the most professional and accessible way to publish on paper or online. On Windows® or Macintosh® platforms. Its groundbreaking layout capabilities offer greater flexibility in page design. What's more, Adobe PageMaker 6.5 is smoothly integrated into the entire family of Adobe products, so there is nothing to stop your work from being the best it can be. From wood pulp to the World Wide Web, it all starts here. For more information call 1-800-422-3623, Ext. 25901 or visit us at our Web site at www.adobe.com.



THE BEST TOOL FOR THE PRINTED PAGE.

- Document-wide layers.
- Automatic reformatting and adjustment for publications.
- Native import of Adobe Illustrator files.
- Text and graphic frames.
- Complete hi-fi color support.
- Save for Service Provider plug-in.
- Interactive tabbed palettes.

THE BEST TOOL FOR ONLINE.

- Hyperlinks palette for online authoring.
- Export and import HTML files.
- Full Adobe Acrobat® support.
- Automatic graphic conversion to JPEG & GIF format.



If you can *dream* it, you can *do* it.®

Adobe, the Adobe logo, Adobe PageMaker, Adobe Acrobat and the tagline, "If you can dream it, you can do it" are trademarks of Adobe Systems Incorporated. Netscape Communications, the Netscape Communications logo, Netscape, and Netscape Navigator are trademarks of Netscape Communications Corporation. Macintosh is a registered trademark of Apple Computer, Inc. Windows is a registered trademark of Microsoft in the U.S. and other countries. All other marks are the property of their respective companies. ©1997 Adobe Systems Incorporated. All rights reserved.

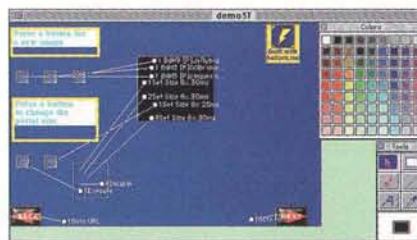
Circle 252 on reader service card

ActionLine 1.1

JAVA JIVE FOR BEGINNERS

ALTHOUGH YOU COULD THEORETICALLY do just about anything with Java, in practice it's most often used to add simple visuals like scrolling text, slide shows, and animation to Web pages. If that's all you want to do with Java—and you'd rather avoid programming and scripting—check out Interactive Media's ActionLine 1.1. The program is great for whipping up interactive Web pages, but given that its competition is free, you may decide you can live without it.

Essentially, all you ever do with this program is drag and drop text, graphics, sound, and controls into "portals"—ActionLine windows that model the Web page you're designing—to create an applet that uses ActionLine's prewritten Java code. ActionLine's canned repertoire includes GIFs that fade into each other, Forward and Back buttons, text banners that scroll, and musical backgrounds (partly because of its musical talents, ActionLine needs QuickTime 2.5 just to load). The program translates your actions into Java code, which you can preview in a browser or in ActionLine's own viewer. The package also includes the



ActionLine's Action Lines It's easy to set up fancy visuals in ActionLine, but the level of complexity in the diagrams that describe the resulting "portals" makes modification difficult.

ActionLine Editor, where you do most of your work, and the Java Viewer, a useful utility for checking out applets in general.

Like most other visual-programming tools, ActionLine makes it easy to create diagrams that represent plain-text Java as icons but that are nearly as complex as the code itself (see "ActionLine's Action Lines"). Another unfortunate by-product of the visual approach is that it's easier to create a set of pages than to change them later; tracing small changes through pages of diagrams can be more time-consuming than simply starting over.

Another drawback is that ActionLine competes with Macromedia's free (but admittedly more limited) AppletAce (<http://www.macromedia.com/software/powerapplets>)

and with GIFBuilder (<http://www.macworld.com/software>), a freeware utility for creating animated graphics. Interactive Media's attention to the details of Java class distribution gives ActionLine better online performance than the free packages, however. The Java Viewer uses 54 classes altogether, but ActionLine edits your code to include only the classes used in a particular applet; the result is page groups that typically need only 12 to 18 small classes (don't worry, you don't have to know anything about classes to use ActionLine—the program takes care of it for you). In plain English, that means your moving graphics will download faster in Navigator or Internet Explorer than the average site's static logo.

The Last Word If you want to get in on the Java action without actually programming, ActionLine is a good choice. You'll run into its limitations fairly early, but it's the fastest route to adding pizzazz to your Web page.—CHARLES SEITER

RATING: ★★/6.6 **PROS:** Lets beginners create Java applets quickly; no programming required. **CONS:** Complex pages are difficult to modify; similar products are free. **COMPANY:** Interactive Media (415/948-0745, <http://www.imcinfo.com>). **LIST PRICE:** \$99.

Audiotracer

AUDIO CD CREATION FOR THE MASSES

WHEN THE EARTH WAS YOUNG, vinyl records were the audio format of choice, and custom cassette compilations of favorite songs were commonplace. As time passed, CDs replaced records, and although the quality of the source media increased dramatically, the quality of the destination cassette remained relatively low.

Today, CD-Recordable (CD-R) hardware and media are quickly becoming affordable enough for consumers, but there is another limiting factor in creating your own audio CDs: the need to create an empty partition on your hard disk equal to the size of the final disc—up to 747MB for a 74-minute CD. Since few consumers have a spare gig drive for CD-R mastering, Optical Media's Audiotracer 1.0 should be a welcome alternative.

Unlike Astarte's Toast and similar CD-R mastering programs, Audiotracer is designed specifically for creating audio CDs. It eliminates the final premastering stumbling block, allowing would-be DJs to create custom compilation audio CDs on the fly by recording directly from the source



The Name Game Audiotracer comes with a customizable database containing titles and track names for 700 popular CDs.

CD to the destination CD, bypassing the premastering hard disk entirely.

Audiotracer comes preconfigured with profiles for many CD-R drives, although my Toshiba unit wasn't one of the models listed. The interface is simple enough, with separate windows for the source CD player and destination recorder. The product includes a CD Catalog database containing titles and track names for 700 popular CDs (see "The Name Game").

When you insert a source disc into the CD player, title and track names appear as untitled in the CD player window, unless the CD is included in the database; you must type at least the title to add your source disc to the CD Catalog database. After this preliminary step, creating a custom CD is as easy as dragging tracks—or

the entire CD—from the source window or CD Catalog to the destination window. (Oddly, though, you have to hold down the ⌘ key to select multiple contiguous tracks and the shift key to select noncontiguous tracks—exactly the opposite of the Macintosh standard.)

Audiotracer exhibited problems at first, crashing with Type 11 system errors. Though the documentation offered no troubleshooting section nor any mention of conflicts, tech support suggested disabling Modern Memory Manager, which solved the conflict (its on-the-fly memory reallocation interferes with Audiotracer).

The Last Word Gone are the days of custom-mix tapes on scratchy cassettes, their high frequencies baked away from living in a car's glove box summer after summer. If you own a CD-R drive and enjoy making custom CDs, Audiotracer is an indispensable addition to your software arsenal.—FRED DELISIO

RATING: ★★★★★/7.5 **PROS:** Direct recording from CD without premastering; simple, easy-to-use interface. **CONS:** No troubleshooting section in user guide; conflict with Modern Memory Manager. **COMPANY:** Optical Media (408/376-3511, <http://www.microtest.com>). **LIST PRICE:** \$99.

"My Microtek ScanMaker® III Pays For Itself Everytime I Use It."

— C. David Piña, designer

The Deadline. Less than a month before air date. You are the designer for a major awards telecast. You will design every graphic and logo used in the program to be seen by millions of people around the world. You don't have time to waste. You need to rely on a fast, solid color scanner to come through in the clutch.

Best Performance By A Scanner In A Supporting Role. If you're C. David Piña, Hollywood's preeminent designer of main titles for the *Academy Awards*®, *Tony Awards*®, *Grammy Awards*®, and *Emmy Awards*® telecasts, this is routine. If you're C. David Piña, you rely on another award-winner — Microtek's fast, accurate 36-bit, high-resolution *ScanMaker*® III color flatbed scanner.

For Best Pictures, the winner is... The *ScanMaker* III with its 36-bit color depth along with *ScanWizard*™. Microtek's award-winning scanner controller software delivers superb color images, and cuts down production time as well. "It used to take me two to four hours after I scanned, to retouch images. Now with *ScanWizard*, I've cut my image-manipulation time literally down to a few minutes per image." — C. David Piña

The envelope please. For the full story of how Microtek helps Piña Design meet its deadlines, call 1-800-654-4160 and ask for the "Nick of Time" case study. For additional product information, use our Auto Tech fax-back line at (310) 297-5101 or point your Web browser to www.microtekusa.com.



Main Title Design by C. David Piña
©NARAS courtesy of Cossette Productions



Main Title Design by C. David Piña ©Smith-Hemion Productions courtesy of The American Theatre Wing



New Lower Price:
\$1,499!
Suggested Street Price



The *ScanMaker* III features: Free Transparent Media Adapter • Incredibly fast single-pass scanning • 600 X 1200 dpi optical resolution; 4800 dpi max. • 3.4 dynamic range • Up to 68.7 billion colors • Adobe Photoshop full-version (Windows and Macintosh models) • MicroFrontier's ColorIt! (Mac models) • OCR software for scanning text (Mac or Windows models) • Microtek's DCR Color Calibrator with IT-8 targets (Mac or Windows models) • Adaptec SCSI Interface Card (Windows models) • Works with Windows® 3.1x, 95 & NT 4.0 • Microtek's *ScanWizard*™ scanning controller software • *ScanWizard* features: Resizable preview • Descreening • High-resolution zoom • Batch scanning • Sharpen, blur, tint & emboss filters • Adjustable & storeable gamma Curves • "Before & after" preview of each effect and much more!

All trademarks or registered trademarks are the property of their respective holders. Price mentioned is United States of America suggested street price. Prices, specifications and software bundles are subject to change without notice. SM3197

MICROTEK
Better Images Through Innovation.

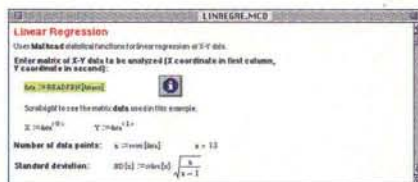
Circle 105 on reader service card

Mathcad Plus 6

THE WORD 6 OF MATH PROGRAMS

COMPARED WITH THE MAGISTERIAL magnificence of Mathematica or the graduate-seminar orientation of Maple, MathCAD 3.1 (see *Reviews*, June 1993) was a practical, problem-oriented numeric math program that focused on standard engineering topics. After a three-year hiatus (and having skipped a few version numbers), MathSoft's Mathcad is back on the Mac. But despite an impressive assortment of new features, Mathcad Plus 6 is a Windows port that needs refinement.

Improving on the programming-code look of earlier versions, Mathcad Plus offers on-screen notation that's almost typeset quality. MathSoft has also expanded the program's statistics capabilities to include time-series treatments and random number generation in common distributions (normal, Poisson, Weibull, and others), a must for exploring the newer, more computation-intensive statistical methods. Mathcad offers excellent "canned" problem solvers for ANOVA and other common stats procedures, along with 200 or so other typical engineering and physics calculations (see "Step-by-Step"). It also supports actual pro-



Step-by-Step Mathcad's QuickSheets not only let you attack complex problems quickly, but all together they constitute a well-designed tutorial in mathematical methods.

gramming, through both its new procedural operators and an interface that lets you import functions written in C. And new 3-D graphics make Mathcad more competitive with other high-end math programs, offering display options normally found only in business presentation packages.

On the Web front, Mathcad's File menu lets you specify your Internet connection settings so you can connect directly from Mathcad, and the ability to post Mathcad worksheets to Web sites makes working with remote collaborators effortless and efficient. (It also gives MathSoft a way to provide continuous online enhancements and upgrades to Mathcad; pretty soon all math packages will be providing this kind of Web-based support.)

Mathcad's problems arise from the state of porting technology. In my review of

Microsoft's Visual C++ 4.0 Cross-Development Edition (see *Reviews*, July 1996), I noted that C++ was capable of turning a small Windows utility into a multimegabyte behemoth on the Macintosh. That's what happened with Word 6, and now with Mathcad. While Mathcad is fast even on a 66MHz 486, the Mac version is hobbled by an awkward, crawling interface. Computation speed on numerical problems isn't bad; it's the choppy scrolling and drawing functions that become annoying in day-to-day use. Another indication of MathSoft's level of commitment to the Mac is that most of its online engineering handbooks and other key products (including Axum and S-Plus) are still only for Windows and Unix.

The Last Word If it weren't a port of a Windows product, Mathcad Plus 6 would be a must-have program. As it stands, even with its innovative features it probably won't tempt many users of other math packages to switch.—CHARLES SEITER

RATING: ★★/6.9 **PROS:** Excellent tool kit; professional statistics capabilities; can link to Mathcad worksheets on the Web. **CONS:** Choppy scrolling and drawing functions; awkward interface. **COMPANY:** MathSoft (617/577-1017, <http://www.mathsoft.com>). **LIST PRICE:** \$349.

New! DiskExpress Pro now accelerated for Power Mac and much more!

DOUBLE YOUR DISK SPEED!

Alsoft DiskExpress Pro



Without optimization, your disk performance slows to a crawl. Basic optimization may restore some of your disk's original performance. Only DiskExpress Pro can double your disk speed by providing faster access to the files you actually use!

	DiskExpress Pro 3.0	Norton Speed Disk 3.2
Makes your Mac faster than new by monitoring actual file usage?	YES	NO
Groups frequently used files together for optimum speed?	YES	NO
Allows you to schedule or immediately perform a complete optimization of all disks without having to restart your Mac?	YES	NO
Verifies accuracy of read and write activity to ensure data safety during optimization?	YES	NO
Optimizes the busiest of AppleShare™ and File Share™ servers without interrupting productivity or taking the server off-line?	YES	NO

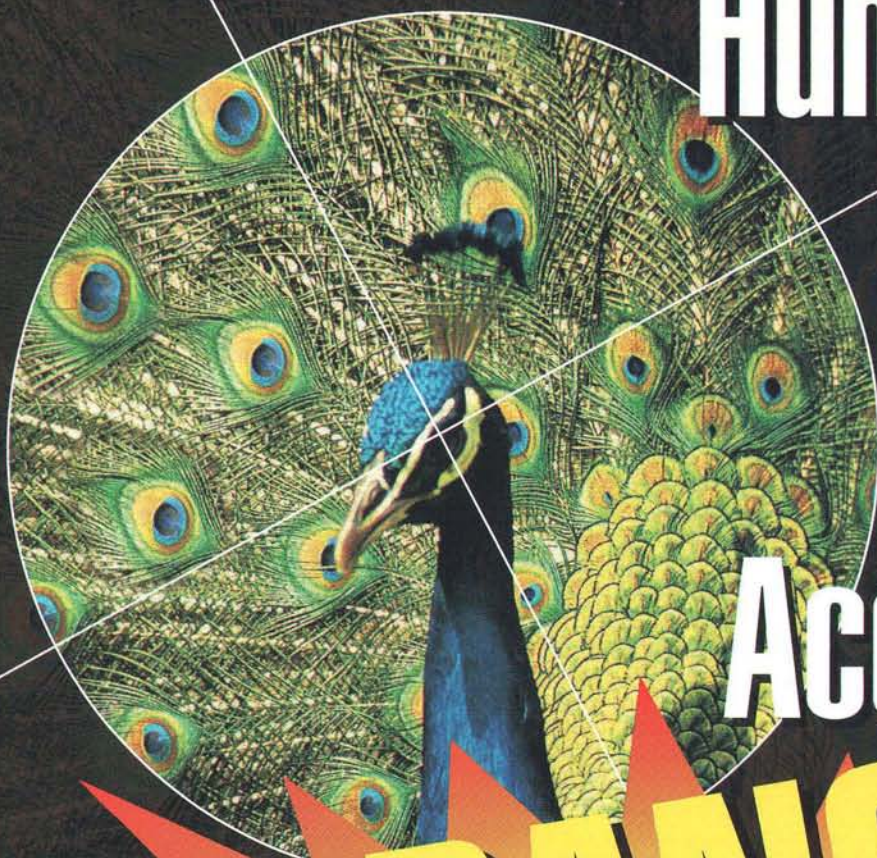
©1997 Alsoft, Inc. P.O. Box 9274 Spring, Texas 77113-5927 USA. Alsoft and DiskExpress are registered trademarks of Alsoft, Inc. Other product names are trademarks of their respective companies.

Sales.Info@AlsoftInc.com

THE UTILITY COMPANY
ALSOFT

800-ALSOFT1

Circle 140 on reader service card



Hunting For Brilliant Color & Accuracy?

BANG!

Introducing **ACROSS™** Scanners



MetaScan Pro36

36-bit, 600x1200dpi, 3.3 dynamic range.
Includes full Photoshop, MetaTools
Suite Pro, OCR software & more!
Transparency option only \$299.

MetaScan 600

30-bit, 600x1200dpi, single pass.
Includes MetaTools Imaging Suite SE,
OCR software & more!
Full Photoshop Bundle only \$249.

MetaScan 3C

24-bit, 300x600dpi, single pass.
Includes MetaTools Imaging Suite SE,
OCR software & more!

Every ACROSS
Scanner includes a full
suite of FREE Software
(only good stuff—no junk!)



Compare Features then Compare Price!

	MetaScan Pro36	AGFA arcus II	UMAX PowerLook
Dynamic Range	3.3	3.0	3.2
Maximum Resolution	9600	2400	9600
Optical Resolution	600 x 1200 dpi	600 x 1200 dpi	600 x 1200 dpi
Scanning Area	8.5" x 14"	8.3" x 14"	8.3" x 11.7"
Color Depth	36-bit	36-bit	36-bit
Full Photoshop	yes	yes	yes
Price	\$999	\$1999	\$2099

**Order
Direct
Now!**

1-800-723-7755

www.expressdirect.com

International 773-244-3000



AUTHORIZED RESELLER

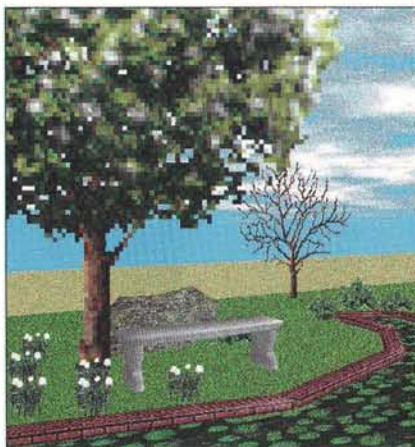
**express
direct**

3D Landscape 2.0

ARMCHAIR GARDENING MADE EASY

UNTIL NOW, LANDSCAPE JUNKIES who use a Macintosh had two options for designing gardens: wrestling with graph paper, a pencil, and a gardening book, or buying a PC to run a Windows landscape program. With Books That Work's 3D Landscape 2.0, Macintosh users can finally build their dream gardens the easy way.

3D Landscape 2.0 (1.0 was available only for Windows) isn't much harder to use than a pencil and graph paper. The program opens to an empty yard and a spiral-bound landscaper's book; you simply choose an object from the notebook and click in the yard to place it. For added realism, you can assign ages to plants—older plants are bigger—and specific sizes to structures. Double-clicking on a structure brings up a read-only dialog box displaying its dimensions; double-clicking on a plant pops up details on its species, age, and general characteristics. The program comes with a database of 2200 plants (you can add to it if you don't find what you're looking for). If you don't have a specific plant in mind but know that you want shade-tolerant



Ready, Set, Garden! After you've embellished that backyard pond with trees, bulbs, and some brick edging, you can take a peek at what to expect in the spring.

ground cover, you can choose from a list of plants that meet those specifications.

All this sculpting and arranging takes place in the 2-D view. When you switch to the 3-D view, 3D Landscape builds your project from the polygon up. The Walk-About feature, which promises a "virtual tour through your garden," is nothing more than navigation arrows for moving around a scene. More useful is the ability to simu-

late what your landscape will look like in a specific season and where shadows will fall in your planned wonderland.

3D Landscape betrays its Windows heritage in a number of interface quirks. You can drag an edge to resize most objects, but not all. You can't resize all objects from the Details button; some only let you set how high off the ground the object appears (a handy feature if you're planning a levitating greenhouse). Worse, you can't simply drag and drop objects. 3D Landscape also lacks an Undo command, requires a Power Mac, and demands lots of memory (close to 17MB in the 3-D view).

The Last Word With 3D Landscape, you can see not only what your plant picks will look like from season to season, but what you can expect from your garden after several years of growth and maturation. Despite some interface quirks, 3D Landscape could be just the tool armchair gardeners have been waiting for.—SUZANNE COURTEAU

RATING: ★★★/6.1 **PROS:** Modifiable database of common yard plants; shows seasonal growth changes; 3-D view. **CONS:** No undo; no drag and drop; RAM-intensive. **COMPANY:** Books That Work (415/326-4280, <http://www.btw.com>). **COMPANY'S ESTIMATED PRICE:** \$60.

Join us.



Advice.

Community

Discounts

Benefits

Connections

Online Access

Find out what it's all about.
www.club.macworld.com




Professional software for automatic
high quality image processing

It's not good...
...it is perfect!

We cannot tell you any more because
this \$1999 package is so unbelievable that
no words are strong enough to describe it.
Try it yourself: download a copy of the
professional demo version today from:
<http://www.binuscan.com>



a special version of binuscan is bundled with all the **UMAX** high-end scanners

a special version of binuscan is freely available for every  Pro Master Photo CD



binuscan - International Sales Division
4-6, Av. Prince Héritaire Albert - MC-98000 MONACO
+377 97 98 55 55 - Fax: +377 97 98 55 56

binuscan, Inc. - US Sales Office
505 5th Avenue - New York, NY. 10017
1 800 881-2352 / 1 212 681-0600 - Fax: 1 212 681-0603

Circle 6 on reader service card

Alley 19

BOWLING GAME FOR THE NOSTALGIC

SAY YOU'RE TRYING TO MARKET a popular sport-simulation game these days. Your instincts might suggest something trendy—hang gliding, jet skiing, or car racing, for example. But Starplay's *Alley 19* is the first and only Mac bowling simulation. Bowling? Wasn't that the game whose trendiness peaked decades ago? For exactly that reason, Starplay sets its virtual bowling alley in the 1950s—with a vengeance.

Everything in *Alley 19*'s gorgeously designed retro alley is accented in chrome and accompanied by original fifties tunes that play as you bowl, so long as the *Alley 19* CD is inserted. Players can choose from four characters—two bobby-soxers and two greasers—to represent themselves on screen, and up to four bowlers can play in each round (one player can be the computer).

To bowl, you aim the ball at the pins gleaming at *Alley 19*'s far end by dragging the mouse as you thrust it forward. When you release the mouse button, the ball leaves your character's hand. By varying the mouse movement, you can actually lend some curve or spin to the ball's course.



Sound and Sense You can't tell from a screen shot, but the best part of the *Alley 19* experience is the audio: crowd, pins crashing, rumbling balls, and the swingin' tunes of the fifties.

Alley 19's realism is nearly perfect: you can see the ball roll as it zooms away from you; the pins go down according to the laws of probability and physics; and your virtual pals mutter things like "Aw, bad split!" and "Ba-by!" In the unlikely event that you bowl three strikes in a row—a "turkey," in bowling slang—a trio of animated, oven-ready turkey breasts can-can across your screen. (I had to disable some of my extensions, however, to see my prancing poultry without crashing.) Few sports are as audio-intensive as bowling, and *Alley 19*'s sound effects are especially outstanding. You're treated to the sounds of ball hitting wood,

pins crashing together, ball landing in gutter, pin-resetting machine lowering, and so on.

Alley 19's only flaw is, unfortunately, the players themselves. In this day of smooth QuickTime movies, it's inexcusable that these digitized characters move and walk at four frames per second, looking like distant ancestors of Max Headroom.

And because fans of the shareware version of *Alley 19* quickly discovered that the brunette female character scores a strike every time just by bowling slow and straight, this version features an unrealistic touch: if you bowl slow and straight, an invisible cosmic force deliberately gives your ball a shove off course. It's an *Alley 19* catch-22.

The Last Word You might wonder what could possibly sound more dull than a computerized version of bowling, but *Alley 19*'s fun music, superb continuous sound-effects track, and smooth animation—the bowlers themselves excepted—enhance its fifties-era novelty.—DAVID POGUE

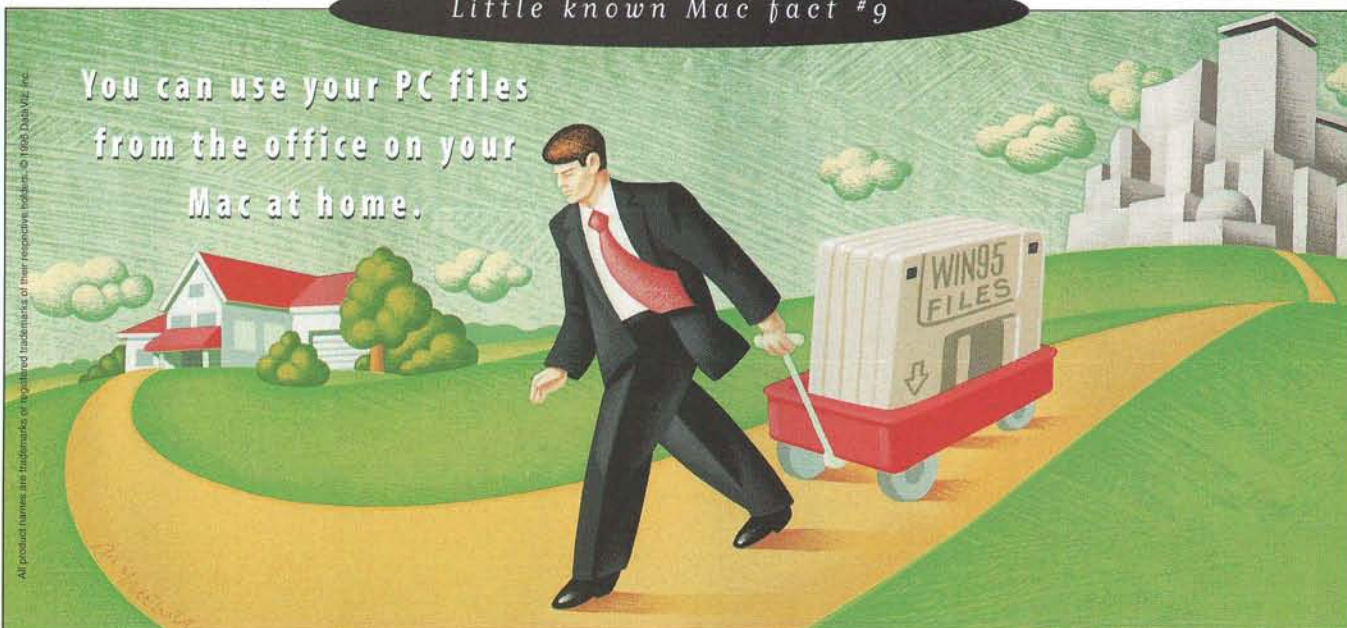
RATING: ★★★/6.3 **PROS:** Great sounds and music; supports up to four players; gleaming fifties-deco design. **CONS:** Jerky bowler animation; impossible to bowl a slow, straight shot.

COMPANY: Starplay (303/447-9562, <http://www.starplay.com>). **DIRECT PRICE:** \$39.95.

Little known Mac fact #9

You can use your PC files
from the office on your
Mac at home.

All product names are trademarks or registered trademarks of their respective holders. © 1999 DataViz, Inc.



No one likes working late at the office. So why not take your work home? MacLinkPlus lets you use virtually any PC-based word processing, spreadsheet or graphic file on your Mac. With all formatting intact. It doesn't matter if you use Microsoft Office at work and ClarisWorks at home. Or Microsoft Works at home and WordPerfect at work. Or thousands of other combinations. MacLinkPlus lets you bring files back and forth with ease. Sure there are lots of reasons why you can't make it home on time. But at least with MacLinkPlus, incompatible file formats doesn't have to be one of them.

For details, call 1-800-270-0030 ext. 125 or visit our Web site at <http://www.dataviz.com/maclink8>.

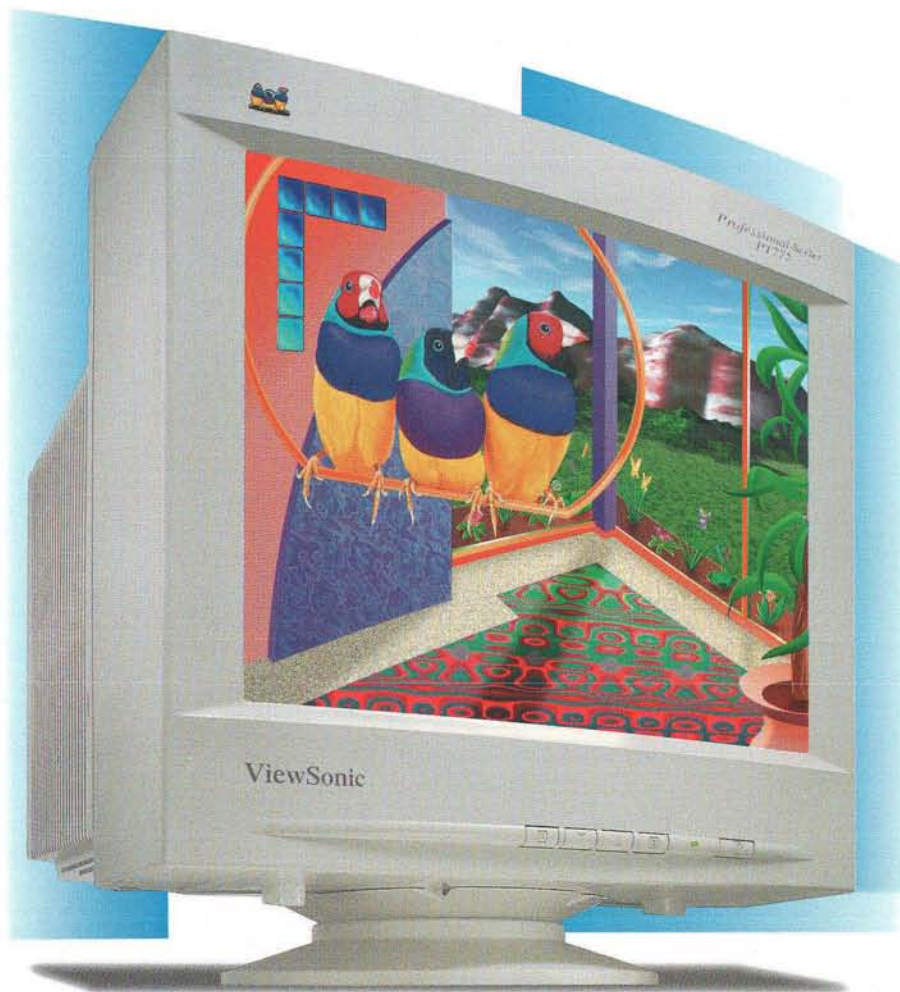


DATAVIZ
The PC & Mac File Compatibility Specialists

Circle 79 on reader service card

When we say ViewSonic®

will exceed your expectations,
we've got the guts to back it up.



**Aperture grille technology
that rewrites the spec charts.**

It's one thing to say our new PT775 17" (16.0" viewable) monitor sets a new performance standard. It's quite another to back up that claim. But we've got the technology and the specs to prove it.

Featuring a 0.25mm aperture grille pitch, the PT775 achieves breakthrough quality in brightness, color saturation and screen clarity with a maximum resolution of 1600 x 1200 at a remarkable 77 Hz refresh rate.

It works hard. It plays hard.

The PT775 SonicTron™ draws on ViewSonic technology to exceed all high-performance demands—from graphic design to business presentations to CAD and the internet.

And, the PT775 is backed by a limited 3 year warranty on CRT, parts and labor (the best in the business), as well as an optional Express Exchange™ Service program that insures 48 hour replacements.

To exceed your highest expectations, call (800) 888-8583 and ask for agent 5817 for the dealer nearest you.

Shown above
Model PT775

ViewSonic PT775

- 17" CRT Size
16.0" Viewable
- Aperture Grille Pitch .25mm
- 96 KHz Horizontal Scan Rate
- 1600 x 1200 @ 77 Hz
Maximum Resolution
- TCO Compliance
- Plug & Play+



ViewSonic G810
January 1997

ViewSonic PT813

- 21" CRT Size
20.0" Viewable
- Aperture Grille Pitch .28mm
- 107 KHz Horizontal Scan Rate
- 1600 x 1200 @ 85 Hz
Maximum Resolution
- TCO Compliance
- Plug & Play+



ViewSonic 17EA
December 1996



ViewSonic®

ClubMac®

800-258-2622
Source Code: WWS96



800-339-4239



800-560-6800
2FT3651

PC Connection

800-986-2271



800-248-0800

MacWAREHOUSE

800-255-6227

Circle 59 on reader service card

Believable Color...

excellent for client
presentation & digital
photo reproduction

photorealistic

300 x 600 dpi

Ethernet

full-bleed tabloid prints

Unbelievable Price - \$7,999!

Standard Features	QMS® ColorScript 460	QMS® ColorScript 480	Tektronix® Phaser 480X	Kodak® Desktop Color Proofer 9000	3M® Imation Rainbow Model 2715
PRICE	\$7,999	\$9,999	\$14,995*	\$17,995	\$9,995
Processor Speed	24 MHz	33 MHz	24 MHz	133 MHz	Host Based**
Interpreter	Printer Based	Printer Based	Printer Based	Printer Based	Host Based
Max Image Area	11.95" x 17.4"	12.17" x 17.53"	11.9" x 17.2"	12.16" x 18"	11.95" x 17.4"
Ethernet Option	Yes	Yes†	Yes†	Yes†	No
Resolution	300 x 600	300 x 600	300 x 300	300 x 300	300 x 300
Internal Hard Drive	260 MB	540 MB	No	No	No
Std/Max RAM	24 MB/24 MB	24 MB/136 MB	32 MB/112 MB	48 MB/112 MB	Host Based
Photoshop Plug In	No	Yes	Yes/Mac Only	Yes	Yes

† EtherTalk, NetWare, TCP/IP

* Requires 48 MB RAM to support 4-color proofing

** Requires a dedicated workstation with a minimum of 20 MB RAM and 160 MB of space for optimum performance

1-800-523-2696 Ext. 63

<http://www.qms.com/>

©1996 QMS, Inc. QMS, the QMS logo, and ColorScript are registered trademarks of QMS, Inc. All other trademarks are the property of their respective companies.

Circle 288 on reader service card

QMS ColorScript returns with the 460 and 480 dye sublimation printers. These printers are designed to deliver high quality, believable color to graphic design professionals. Improve your proofing capabilities and presentation materials with QMS ColorScript. Compare features, compare prices, call QMS —today!



Adobe PostScript



Star Ratings

HARDWARE AND SOFTWARE PRODUCTS AT A GLANCE

Macworld's Star Ratings let you compare Macintosh products based on the authoritative assessments in our reviews and features.

What the Scores Mean The number of stars indicates the product's level of quality; each product also gets a numeric score that provides a more exact assessment of the product's quality within that level. The chart below shows the meaning for each level.

We evaluate seven factors to derive the Star Rating: feature set, design implementation, performance, reliability, ease of use, innovation, and value. We take these evaluations, weight their importance for each class of product, and calculate the final score. The higher the score, the better a product is, even among products with the same number of stars.

Editors' Choice This section also lists products that have been awarded an Editors' Choice designation in a Macworld product comparison. That designation indicates a best-of-class product for a particular need.

Ratings Online The ratings listed here are of recently reviewed products in select categories. For a complete, searchable list, go to Macworld Online, at <http://www.macworld.com/pages/star/ratings.html>.

Full Reviews To read a full review of any product in the listing, please consult the issue indicated at the end of the listing or search for the product via Macworld Online (keyword *Macworld* on America Online; URL <http://www.macworld.com> on the World Wide Web). If a product has been upgraded since our last assessment, the most recent version number appears in parentheses after the main reviewed version number.

Vendors: Please write to Macworld Star Ratings, 501 Second St., San Francisco, CA 94107, to inform us of changes in the version number or list price of your product, or of changes to your phone number.

Software

BUSINESS

- ★★★★/8.9 **Analytica**, Decisioneering, 303/534-1515, \$795. Financial-modeling tool helps you assess business decisions. *Mar 97, p. 72*
- ★★★★/7.9 **Big Business 2.0**, Big Software, 408/725-7200, \$199 to \$999. All-in-one business application integrates sales, marketing, ordering, and accounting. *Jan 97, p. 64*
- ★★★/6.5 **Butler SQL 2.0.2**, EveryWare Development, 905/819-1173, \$695. This SQL database is

well suited for serving data over the Internet. *Oct 96, p. 104*

- ★★★★/8.1 **Claris Organizer 2.0**, Claris, 408/727-8227, \$69. Solid upgrade is worth the wait. *Jan 97, p. 62*
- ★★★★/8.4 **ClarisWorks 4.0**, Claris, 408/727-8227, \$129 (estimated). The program has speed, a clean design, and low resource requirements. *Jun 96, p. 98*
- ★★★/5.4 **Day-Timer Organizer 2.1**, Day-Timer Technologies, 415/572-6260, \$79.95. All-in-one PIM improved, but not perfect. *Mar 97, p. 72*
- ★★★★/7.1 **Kiplinger TaxCut '96**, Block Financial, 617/428-1119, \$29 to \$39. Tax software offers friendly interview process. *Mar 97, p. 56*
- ★★★/7.7 **MacInTax Deluxe '96**, Intuit, 520/295-3110, \$44.95. CD-ROM includes comprehensive state tax modules. *Mar 97, p. 56*
- ★★★/6.3 **Map Factory**, ThinkSpace, 519/858-5047, \$996. Unique raster-based mapping program. *Nov 96, p. 70*
- ★★★/6.9 **Mariner Write 1.3**, Mariner Software, 502/222-6695, \$69.95. Word processor stresses speed and elegance. *Mar 97, p. 63*
- ★★★★/7.1 **Microsoft Excel 5.0**, Microsoft, 206/882-8080, \$295 (estimated). Although it's the only game in town, Excel 5 is a glut for RAM and disk space. *Jun 96, p. 98*
- ★★★/6.7 **Microsoft Word 5.1**, Microsoft, 206/882-8080, \$320 (estimated). Fast, sleek, stable, and probably the most widely used Mac word processor on earth. *Jun 96, p. 98*
- ★★★★/8.9 **Personal RecordKeeper 4.0**, Nolo Press, 510/549-4660, \$49.95. Database helps you keep tabs on personal information. *Mar 97, p. 83*
- ★★★★/7.2 **PhoneDisc PowerFinder 2.2**, Digital Directory Assistance, 301/657-8548, \$129. CD-ROM telephone directory offers instant response times. *Nov 96, p. 74*
- ★★★/3.0 **Phone Search USA 2.0**, DeLorme Mapping, 207/865-1234, \$49. Inexpensive but bare-bones telephone directory on CD-ROM. *Nov 96, p. 74*
- ★★★/6.9 **Quicken Business Law Partner 2.0**, Parsons Technology, 319/395-9626, \$49. Suffices if you want to get the job done with a minimum of fuss. *Feb 97, p. 84*
- ★★★★/8.7 **Quicken Deluxe 7.0**, Intuit, 520/295-3220, \$59.95. Indispensable financial manager. *Feb 97, p. 64*
- ★★★★/8.8 **Sculpt 2.0**, Interactive Simulations, 619/658-9462, \$895. Molecular modeling at blazing

speeds. *Oct 96, p. 84*

- ★★★★/7.2 **Select Phone 4.0**, Pro CD, 508/750-0055, \$99. Reliable telephone directory has nice interface. *Nov 96, p. 74*
- ★★★★/7.6 **Small Business Legal Pro Deluxe 2.0**, Nolo Press, 510/549-1976, \$59.95. A great value if you want to be fully informed. *Feb 97, p. 84*
- ★★/4.5 **Street Atlas USA 3.0**, DeLorme Mapping, 207/865-1234, \$79. Map program update is better and cheaper, but still flawed. *Nov 96, p. 100*
- ★★★★/5.1 **TakeNote 1.0**, Academix Software, 415/493-3003, \$79.95. Reference tool goes halfway to replacing the familiar index card. *Jan 97, p. 88*
- ★★★★/7.1 **Timeslips 4.0**, Timeslips, 214/248-9232, \$299.95. Time-tracking and -billing package is unnecessarily complex. *Jan 97, p. 86*
- ★★★★/7.4 **WordPerfect 3.5**, Corel, 613/728-8200, \$129 (estimated). In speed, interface efficiency, and Macintosh integration, WordPerfect beats all competitors. *Jun 96, p. 98*

EDUCATION/ENTERTAINMENT

- ★★★★/8.2 **Afterlife**, LucasArts, 415/507-4545, \$45. Wacky simulation mixes Dante, Milton, and P.T. Barnum. *Jan 97, p. 130. Editors' Choice* for best simulation game.
- ★★★★/8.7 **Amber: Journeys Beyond**, Changeling, 512/419-7085, \$70. Think *Myst* à la Stephen King. *Jan 97, p. 130. Editors' Choice* for best adventure game.
- ★★★★/7.1 **America Rock**, Creative Wonders, 800/543-9778, \$39.95. CD-ROM capitalizes on the solid learning theories of the original *Schoolhouse Rock* TV spots. *Jan 97, p. 54*
- ★★★★/8.8 **Bad Mojo**, Pulse Entertainment, 800/264-0325, \$40. A sickeningly delightful experience: you become a cockroach. *Jan 97, p. 130. Editors' Choice* for best role-playing game.
- ★★★/6.5 **Blizzard's Holiday Jamboree**, Brøderbund, 415/382-4400, \$19.95. Wild West-themed holiday activity kit with a goofy attitude. *Jan 97, p. 54*
- ★★★★/7.1 **Capitalism**, Interactive Magic, 919/461-0722, \$54.95. Money talks in this financial simulation game. *Feb 97, p. 96*
- ★★★★/7.2 **Chess Mates**, BrainStorm, 888/427-2467, \$34.95. Entertaining instruction for fledgling chess nerds. *Jan 97, p. 54*
- ★★★/6.1 **Corel All-Movie Guide 2**, Corel, 613/728-continues

REAL PRODUCTS REAL RATINGS

Reviews you can trust: Unlike other publications, Macworld rates only final shipping products, not prototypes. What we review is what you can actually buy.

Outstanding ★★★★★ = 9.0-10.0 Very Good ★★★★ = 7.0-8.9 Good ★★★ = 5.0-6.9 Flawed ★★ = 3.0-4.9 Unacceptable ★ = 0-2.9

Star Ratings

8200, \$25.95. Handy CD is the next best thing to having a cinema buff inside your computer. Jan 97, p. 54

★★★★7.8 **Digital Lab**, Philips Media, 303/739-4131, \$44.99. An entertaining, hands-on project kit for budding wire-heads. Jan 97, p. 54

★★★★8.5 **Flight Unlimited**, Looking Glass Technologies, 617/576-3310, \$50. Puts you in touch with what makes flying special. Jan 97, p. 130. **Editors' Choice** for best flight simulator.

★★★★7.2 **Green Eggs and Ham**, Living Books, 415/352-5200, \$29.95. A charming, lighthearted adaptation of the classic Dr. Seuss book comes to CD. Jan 97, p. 54

★★★6.9 **Gryphon Bricks**, Gryphon, 619/536-8815, \$30. Virtual Lego bricks for your inner cyber-child. Jan 97, p. 54

★★★★8.4 **IndyCar II**, Sierra On-Line, 800/757-7707, \$55. This champion of race games has just about everything you can think of. Jan 97, p. 130. **Editors' Choice** for best sports game.

★★★★8.3 **Interactive Physics 3.0**, Knowledge Revolution, 415/574-7777, \$249. Nearly automatic physics instruction. Mar 97, p. 86

★★★★7.7 **Leonardo the Inventor 2.0**, SoftKey, 617/494-1200, \$29.95. CD-ROM illustrates da Vinci's life and inventions. Jan 97, p. 54

★★★★7.9 **Origami: The Secret Life of Paper**, Casady & Greene, 408/484-9228, \$39.95. Tutorial CD teaches you how to recycle paper with style. Jan 97, p. 54

★★★3.0 **Police Quest: SWAT 1.0**, Sierra On-Line, 206/649-9800, \$49.95. Sierra's action-adventure game misfires. Mar 97, p. 88

★★★★8.7 **Spaceward Ho 4.0**, Delta Tao Software, 408/730-9336, \$59. Interstellar empire building relies on strategy, not brute strength. Jan 97, p. 130. **Editors' Choice** for best network game.

★★★★8.1 **Spycraft: The Great Game**, Activision, 310/479-5644, \$45. Spycraft is better than a le Carré novel. Jan 97, p. 130. **Editors' Choice** for best multimedia game.

★★★★9.0 **Step On It**, Casady & Greene, 408/484-9228, \$40. Addictive arcade game will drive you mad until you solve it. Jan 97, p. 130. **Editors' Choice** for best arcade game.

★★★★7.0 **Sundial: The Original Timelapse Desktop**, John Neil & Associates, 415/905-3000, \$29.95. A control panel that syncs outdoor scenery to your Mac's clock. Jan 97, p. 54

★★★★6.1 **Virtual Pool**, MacPlay, 714/553-6655, \$39.95. Billiards simulator guarantees to improve your game. Jan 97, p. 95

★★★★7.7 **Warcraft II: Tides of Darkness**, Blizzard, 714/955-1382, \$55. Impressive strategy game is a wonderful clash between humans and Orcs. Jan 97, p. 130. **Editors' Choice** for best strategy game.

★★★★7.8 **Where in the World Is Carmen Sandiego? 3.0**, Broderbund, 415/382-4400, \$39.95. Classic geography adventure adds new crime-solving fun. Jan 97, p. 54

★★★★7.8 **Williams-Sonoma Guide to Good Cooking**, Broderbund, 415/382-4400, \$39.95. A domestic gift that won't gather dust alongside that unused crockpot. Jan 97, p. 54

★★★★8.9 **You Don't Know Jack XL**, Berkeley Systems, 510/540-5535, \$40. Gloriously irreverent, borderline-tasteless send-up of every bad game show. Jan 97, p. 130. **Editors' Choice** for best party game.

GRAPHICS

★★★★7.1 **Adobe Illustrator 6.0.1**, Adobe Systems, 415/961-4400, \$595. Efficient and well-organized drawing program doesn't surpass FreeHand 5.5. Jan 97, p. 112

★★★5.7 **Canvas 5.0**, Deneba, 305/596-5644, \$599.95. Midrange graphics program has professional price. Jan 97, p. 112

★★4.8 **Chromatica**, Chroma Graphics, 415/375-1100, \$149.95. Handy but limited Photoshop plug-in. Feb 97, p. 80

★★4.6 **CorelDraw 6 Suite**, Corel, 613/728-8200, \$595. Graphics suite lacks solid image-editing and drawing programs. Jan 97, p. 112

★★★★8.9 **Detailer**, Fractal Design, 408/430-4000, \$449. Wonderful imaging tool lets you paint directly on 3-D models. Feb 97, p. 72

★★★★7.8 **ElectricImage Broadcast 1.0**, Electric Image, 818/577-1627, \$2495. 3-D animation tool gets new price, new features. Nov 96, p. 88

★★★★8.6 **Expression 1.0**, Fractal Design, 408/688-5300, \$449. Object-oriented natural-media drawing arrives—at last. Mar 97, p. 50

★★4.7 **Fastedit/Deluxe**, Total Integration, 847/776-2377, \$249. Photoshop plug-in lets you edit quickly, but is expensive. Nov 96, p. 92

★★★★7.5 **Form-Z RenderZone 2.8**, Autodesk, 614/488-9777, \$1995. Impressive 3-D modeler gets rendering know-how. Oct 96, p. 75

★★★★8.7 **FreeHand 7**, Macromedia, 415/252-2000, \$399. Near-perfect draw program. Feb 97, p. 56

★★★★7.9 **FreeHand Graphics Studio 7**, Macromedia, 415/252-2000, \$449. Suite provides professional-level power at an affordable price. Feb 97, p. 56

★★★★8.3 **Full Pixel Search 2.0**, Avian Systems, 201/568-9494, \$295. Image-analysis program finds a pixel in a haystack. Mar 97, p. 84

★★★★7.9 **Infini-D 3.5**, Specular, 413/253-3100, \$649. Approachable, practical mix of 3-D design ingredients. Jan 97, p. 70

★★★★8.3 **Kai's Power Goo**, MetaTools, 805/566-6200, \$49.95. Family image-editing software that pros will use. Jan 97, p. 84

★★★★8.9 **Painter 4.0**, Fractal Design, 408/688-5300, \$549. Most artists should own Painter 4.0; its painting and special-effects capabilities simply can't be beat. Jun 96, p. 78

★★★★8.3 **Photoshop 4.0**, Adobe Systems, 415/961-4400, \$895. New version cements image editor's position as the top product. Feb 97, p. 132

★★★5.7 **PhotoTools 1.0**, Extensis, 503/274-2020, \$99.95. Useful Photoshop plug-in. Feb 97, p. 80

★★★★8.1 **Poser 2.0**, Fractal Design, 408/430-4100, \$249. Human models in 3-D (clothing optional). Mar 97, p. 76

★★★★8.2 **PowerCADD 3.0**, Engineered Software, 910/299-4843, \$795. Fast, pro-level drafting program gets some refinements. Jan 97, p. 74

★★4.4 **Power/Pac 1**, Auto F/X, 603/875-4400, \$249. Macros for Photoshop are useful but restrictive. Feb 97, p. 80

★★★★8.9 **ScanPrepPro 3.1**, ImageXpress, 770/564-9924, \$695. Photoshop plug-in puts image processing on autopilot. Mar 97, p. 80

★★★★8.1 **Slicer 1.0**, Fortner Research, 703/478-0181, \$695. View 2-D slices of 3-D images. Nov 96, p. 98

★★★6.5 **Stencil It 1.0**, Kaetron Software, 713/298-1500, \$99. Low-cost program is good for charts, but not for art. Jan 97, p. 72

★★★★8.2 **Stylist 1.0**, Alien Skin Software, 919/832-4124, \$199. Plug-in adds graphic and text style sheets to Illustrator. Oct 96, p. 64

★★★★7.4 **TurboCAD 2D/3D 3.0**, IMSI, 415/257-3000, \$149. Nearly high-end CAD program with educational-software price. Dec 96, p. 67

MEDIA

★★★★7.1 **3D Web Workshop 1.0**, Specular International, 413/253-3100, \$249. Instant Internet presence in 3-D. Oct 96, p. 68

★★★★8.2 **AD-1 Pro Audio Analyzer 2.0**, Intelligent Devices, 410/744-3044, \$349 to \$449. Audio meters for the discriminating producer. Dec 96, p. 84

★★★★ **Adobe PageMaker 6.0**, Adobe Systems, 206/622-5500, \$895. Page-layout program's upgrade includes practical and powerful improvements. Nov 95, p. 60

★★★★7.1 **Adobe Persuasion 4.0**, Adobe Systems, 408/536-6000, \$395. Presentation application makes the leap to the Web. Mar 97, p. 52

★★★★7.4 **Adobe Premiere 4.2**, Adobe Systems, 415/961-4400, \$795. Video editor offers significant enhancements, including CD-ROM Movie Maker plug-in. Mar 96, p. 90

★★★★7.5 **Boris Effects 2.0**, Artel Software, 617/566-0870, \$350 to \$695. Inexpensive, multichannel digital-video-effects program is a worthwhile investment. Jan 97, p. 76

★★★6.8 **ClickWorks 1.0.2**, Pitango, 617/280-7163, \$985. Presentation program is a solid choice. Feb 97, p. 74

★★★6.7 **Digital Chisel://HTML 2.1.3**, Pierian Spring Software, 503/222-2044, \$109 to \$995. Multimedia authoring doesn't make it on the Web. Jan 97, p. 78

★★★★ **FrameMaker 5.0**, Adobe Systems, 408/975-6000, \$895. This page-layout program is a good choice for technical-document creation. Nov 95, p. 63

★★★★7.4 **Movie Cleaner Pro 1.2.1**, Terran Interactive, 408/278-9025, \$189.95. First-rate movie compression utility is a must-have. Jan 97, p. 81

★★★★7.2 **MovieFlo 2.0.2**, The Valis Group, 415/435-5404, \$699. Image-distortion software for pros. Jan 97, p. 92

★★★5.5 **MovieStar 1.5**, Intelligence at Large, 215/387-6002, \$149.95. Easy QuickTime moviemaking and animation for the Internet. Feb 97, p. 92

★★★★7.3 **mTropolis 1.1**, mFactory, 415/548-0600, \$1195. This sophisticated authoring environment is a terrific tool for game developers. Feb 97, p. 74

★★★★7.8 **Pro View 1.3**, E-magine, 800/603-1474, \$99.95. Back-to-basics presentation tool. Nov 96, p. 95

★★★★7.0 **PageTools 2.0**, Extensis, 503/274-2020, \$99.95. Plug-ins add power and precision to PageMaker. May 96, p. 65

★★★★8.0 **QuarkImmedia 1.0**, Quark, 303/894-8888, \$995. An easy move from print to multimedia. Dec 96, p. 57

★★★★7.8 **QX-Tools 2.0**, Extensis, 503/274-2020, \$99.95. Winning collection of XTensions gets even better. Mar 97, p. 65

★★★5.3 **UniQorn 1.01**, SoftPress Systems Limited, 415/331-4820, \$895. Page-layout program has QuickDraw GX support—but not much else. Aug 96, p. 56

★★★5.1 **Xdream 1.0**, Vision's Edge, 904/386-4573, \$149. Xdream comprises 24 tools ranging from useful to indispensable. Jun 96, p. 50

★★★★7.1 **XPert Tools 1.0**, XChange, 415/864-7592, \$99 to \$169. If you need to go beyond Quark's feature set, XPert Tools will take you there. Jun 96, p. 50

continues

"Wow, look what's inside the best color scanners!"

The world's best color scanning software. If you think all scanners are pretty much alike, you're partially right. The hardware *is* similar. But what makes a scanner perform is the software. And when it comes to software, there is nothing like LinoColor™ VisuaLab™. VisuaLab is based on our more than 40 years' experience working with professional quality color. Recently, *Computer Reseller News* named VisuaLab

as the software that gives the best results in color scanning. So why settle for just a scanner when a LinoColor SAPHIR, OPAL or JADE scanner delivers what you really want – great scans?

To learn more about how easy great scanning can be, call for our free brochure today: **888-LINOCOLOR**. Or get it on the Web at www.linocolor.com



JADE Scanner:
"The color accuracy is the best
we've seen from a scanner
costing under \$1,000." *MacUser LABS*



LinoColor
Color is child's play.

Linotype-Hell

©1997 Linotype-Hell. Hell and Linotype are registered trademarks; and LinoColor and VisuaLab are trademarks of Linotype-Hell AG and/or its subsidiaries. Macintosh is a registered trademark of Apple Computer, Inc. Windows is a registered trademark of Microsoft Corporation.

Circle 17 on reader service card

For Macintosh® or Windows®

Star Ratings

UTILITIES

- ★★★/6.7 **After Dark 4.0**, Berkeley Systems, 510/540-5535, \$30 to \$40. Glitzy, but not necessarily better, than previous versions. *Feb 97, p. 76*
- ★★/4.1 **At Ease 3.0**, Claris, 408/987-7000, \$49. Can be easily defeated with a Disk Tools floppy or separate start-up disk. *Nov 96, p. 146*
- ★★★★/7.9 **BorderGuard Access Router**, Network Systems, 612/424-4888, \$1700. Transparent encryption of AppleTalk and TCP/IP that lets you use the Internet instead of a private WAN. *Nov 96, p. 146*
- ★★★★/7.6 **CanOpener 3.5**, Abbott Systems, 914/747-4171, \$65. Reliably recovers text and graphics from damaged files. *Feb 97, p. 88*
- ★★★/6.2 **cypherPad**, usrEZ Software, 714/756-5140, \$49. Easy setup and usage; good basic security. *Nov 96, p. 146*
- ★★★★/7.3 **DiskGuard 1.5**, ASD Software, 909/624-2594, \$79. Good combination of low price and easy installation. Solid, basic protection. *Nov 96, p. 146*
- ★★★★/7.9 **DiskLock 4.0**, Symantec, 541/984-2490, \$129. Easy automatic setup makes this a snap to configure; has most protection features you need. *Nov 96, p. 146*
- ★★/4.9 **DiskWorks 3.0.2**, MicroNet Technology, 714/453-6100, \$299. Disappointing hard-drive formatter has an awkward interface. *Dec 96, p. 62*
- ★★★★/6.1 **Dr. Solomon's Anti-Virus Toolkit 7.61**, S&S International, 617/273-7400, \$85. Antivirus utility can check DOS disks. *Dec 96, p. 60*
- ★★★/6.0 **Empower 5.0.4**, Magna, 408/879-7907, \$129. Decent design, but overpriced for features offered. *Nov 96, p. 146*
- ★/1.8 **Executor 2.0**, Abacus Research & Development, 505/766-9115, \$249. Mac emulator for PCs falls far, far short. *Feb 97, p. 78*
- ★★/3.9 **Faxstf 3.2**, STF Technologies, 816/463-1412, \$99 to \$295. Faxing application suffers from its revision. *Oct 96, p. 66*
- ★★★★/8.0 **FileGuard 3.0**, ASD Software, 909/624-2594, \$139. Most of the features you need, combined with ease of installation, reliable performance, and robust protection. *Nov 96, p. 146* **Editors' Choice** for best desktop security software.
- ★★★/6.6 **Font Box 1.8.3**, Insider Software, 619/622-9900, \$79.95 to \$169.95. Font fixer could use some repairs. *Nov 96, p. 90*
- ★★/4.9 **FoolProof 2.5**, SmartStuff Software, 503/231-4300, \$39. Decent design, but lacks features and is too easy to defeat. *Nov 96, p. 146*
- ★★★★/7.0 **Hard Disk Toolkit 2.0.1**, FWB, 415/463-3500, \$199. Reliable hard-drive formatter can actually tweak a drive to run faster. *Dec 96, p. 62*
- ★★★★/8.5 **HSM Toolkit 1.0**, FWB, 415/325-4392, \$79. Infinite storage made infinitely more simple. *Oct 96, p. 77*
- ★★★/6.8 **KeyQuencer 2.0**, Binary Software, 310/449-1481, \$39.95 direct. Macro program for speed addicts and control freaks. *Dec 96, p. 59*
- ★★★★/7.8 **KeyServer 4.1**, Sassafras Software, 603/643-3351, \$800. Easy-to-install tool enforces usage thresholds and lets you track applications. *Nov 96, p. 146*
- ★★★★/8.3 **Mac Manager 3.1**, ELS, 352/375-0558, \$299. Provides both safe and impenetrable access protection and data encryption. *Nov 96, p. 146*
- ★★★★/7.5 **MATLAB Statistics Toolbox 2.0**, The MathWorks, 508/647-7000, \$395. Statistical analysis tool on steroids. *Dec 96, p. 77*
- ★★★★/9.3 **MATLAB Wavelet Toolbox 1.0**, The

MathWorks, 508/647-7000, \$895. Powerful wavelet-analysis tool. *Dec 96, p. 77*

- ★★★★/7.7 **McAfee VirusScan 2.0**, McAfee Associates, 408/988-3832, \$65. World-class virus protection has little impact on Mac's performance. *Dec 96, p. 60*
- ★★★★/8.1 **NetShade 1.1**, Atemi, 217/352-3689, \$299. Easy to install and configure, it scrambles data and foils all but the most determined sniffers. *Nov 96, p. 146*
- ★★★★/8.1 **Network Security Guard 3.1**, Mr. Mac Software, 619/453-2845, \$289. Scans your network for unintentional guest access, poorly chosen passwords, and other security loopholes. *Nov 96, p. 146*
- ★★★/6.4 **Now Utilities 6.5**, Now Software, 503/274-2810, \$89.95. Incremental feature upgrades are no substitute for stability. *Mar 97, p. 74*
- ★★★★/7.1 **On Guard 2.1**, Power On Software, 216/735-3116, \$70. Easy install, attractive Finder-like configuration menu; low-priced. *Nov 96, p. 146*
- ★★★★/8.2 **QuickKeys 3.5**, CE Software, 515/224-1995, \$119. QuickKeys exists to make macros easier. *Dec 96, p. 59*
- ★★★★/8.6 **RAM Doubler 2.0**, Connectix, 415/571-5100, \$99. Control panel now triples your RAM. *Dec 96, p. 67*
- ★★★/6.4 **SAM 4.5**, Symantec, 408/253-9600, \$69.95. Industrial-strength virus protection. *Feb 97, p. 86*
- ★★★/6.1 **SecretAgent 3.0**, AT&T, 847/405-0390, \$249. An overpriced one-trick pony; its advantage is cross-platform compatibility. *Nov 96, p. 146*
- ★★★★/7.8 **Spell Catcher 1.5.6**, Casady & Greene, 408/484-9228, \$59.95. Resurrected Thunder 7 is still much more than a spelling checker. *Dec 96, p. 73*
- ★★/4.0 **Startup Manager 7.0**, Now Software, 503/274-2810, \$55. Extension-management tool simply can't compare to the competition. *Mar 97, p. 61*
- ★/2.7 **StellarFax 1.1**, TechPool, 216/291-1922, \$249. Sends inferior-quality faxes faster. *Feb 97, p. 90*
- ★★★★/7.3 **Stuffit Deluxe 4.0**, Aladdin Systems, 408/761-6200, \$129.95. Same compression format, but faster and with a brilliant Finder twist. *Oct 96, p. 61*
- ★★/4.6 **Turbo Toolkit 1.0**, FWB Software, 415/463-3500, \$79. Disk utility offers minor speed-up. *Mar 97, p. 74*
- ★★★★/7.0 **ultraSecure**, usrEZ Software, 714/756-5140, \$239. A textbook of required security features, hampered by so-so manual and complex installation. *Nov 96, p. 146*
- ★★★/6.4 **ultraShield**, usrEZ Software, 714/756-5140, \$149. Mixed combination of terrific features with complex installation and multiple warnings about use with other software. *Nov 96, p. 146*
- ★★/4.3 **UnderCover**, SmartStuff Software, 503/231-4300, \$39. A slightly buggy one-trick pony. *Nov 96, p. 146*
- ★/2.1 **ViaCrypt PGP 4.0**, ViaCrypt, 602/944-0773, \$129. Hard to install, hard to use; few saving graces. *Nov 96, p. 146*
- ★★★/6.9 **Virex 5.6.7**, Datawatch, 508/988-7000, \$100. Fast scanning, but caused general system slowdown. *Nov 96, p. 146*
- ★★★★/7.0 **WebLock 1.0**, Maxum Development, 708/830-1113, \$195. Gives your Web server access protection via password log-in to protect private pages. *Nov 96, p. 146*
- ★★★★/8.5 **WebStar SSL 1.2.4**, Quarterdeck, 310/309-3700, \$1295. Lets you use transparent encryption to exchange sensitive data safely with security socket layer-capable Web browsers. *Nov 96, p. 146* **Editors' Choice** for best network security.
- ★★★/6.5 **Working Papers**, Dominion Software, 617/332-1144, \$199.95. Manage your documents with OCR program and document organizer. *Feb 97, p. 94*

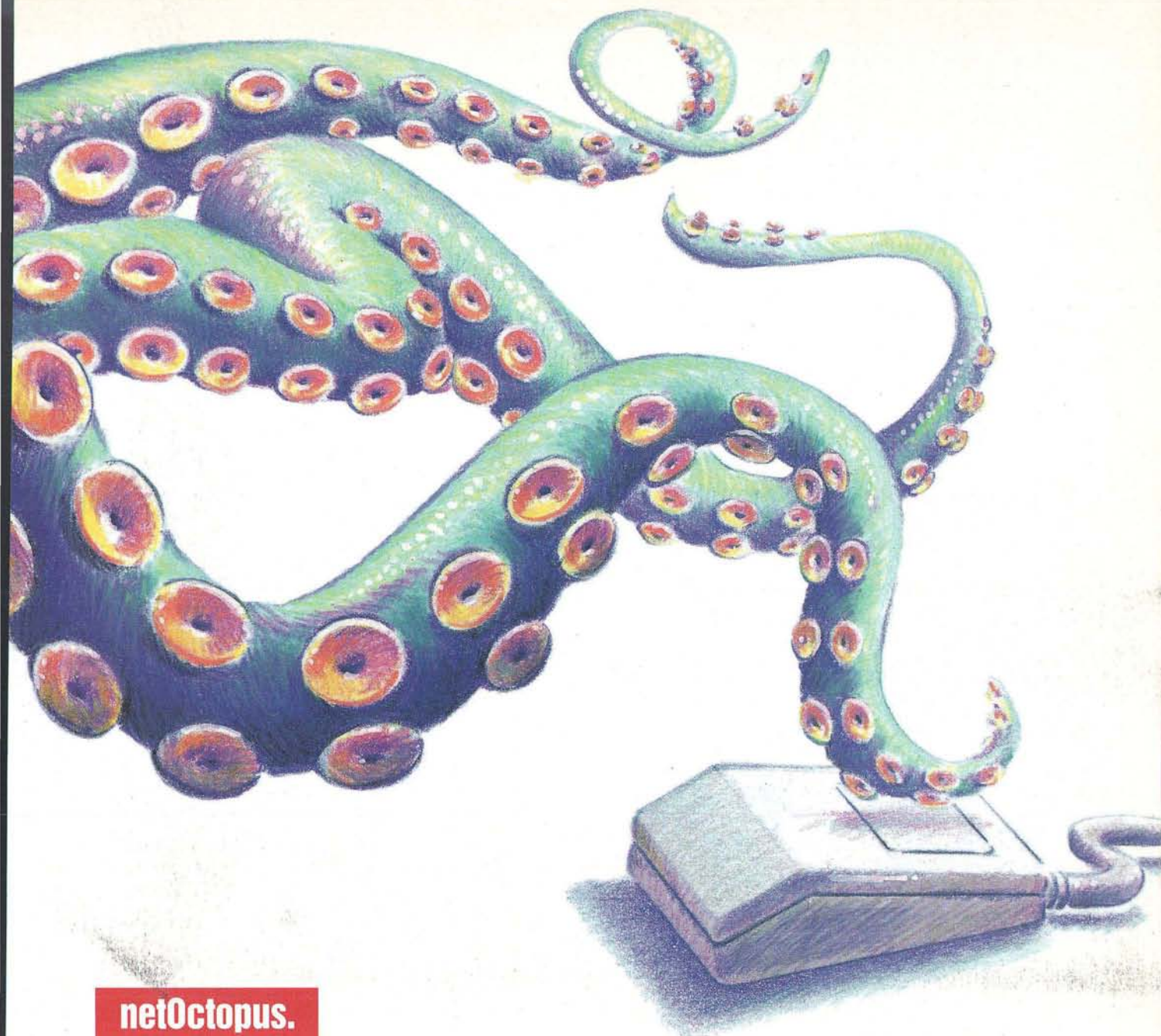
Hardware

DIGITAL CAMERAS

- ★★/3.9 **Casio QV-100**, Casio, 201/361-5400, \$599. Camera produces poor-quality images with blown highlights. *Mar 97, p. 112*
- ★★★/5.8 **Casio QV-10A**, Casio, 201/361-5400, \$399. Blown highlights and color cast problems mar images from camera. *Mar 97, p. 112*
- ★★★/6.6 **D-200L**, Olympus Image Systems, 516/844-5000, \$599. Digital camera offers good image quality and a built-in flash. *Mar 97, p. 112*
- ★★/4.6 **DC20**, Kodak, 716/724-4000, \$350. Pint-size camera contains no extras whatsoever. *Mar 97, p. 112*
- ★★★/6.8 **DC50**, Kodak, 716/724-4000, \$979. Good color, expandability, and an excellent zoom lens set the DC50 apart. *Mar 97, p. 112* **Editors' Choice** for best entry-level digital cameras.
- ★★★/6.0 **Epson PhotoPC**, Epson, 310/782-0770, \$499. Digital camera's viewfinder doesn't show the whole image. *Mar 97, p. 112*
- ★★★★/7.1 **Fuji DS-7**, Fuji Photo Film, 914/789-8100, \$699. Camera makes framing and reviewing photographs child's play. *Mar 97, p. 112* **Editors' Choice** for best entry-level digital cameras.
- ★★★★/7.9 **PDC-2000/40**, Polaroid, 716/256-4436, \$3695. Difficult to use and not inexpensive, but extremely high-quality images. *Mar 97, p. 112* **Editors' Choice** for best entry-level digital cameras.
- ★★★/6.2 **QuickTake 150**, Apple Computer, 408/996-1010, \$739. Oversized camera downloads images quickly. *Mar 97, p. 112*
- ★★★/5.8 **RDC-2**, Ricoh, 702/352-1600, \$999. Fair-to-middling image quality detracts from this camera's extras. *Mar 97, p. 112*

MISCELLANEOUS HARDWARE

- ★★★★/8.9 **3M Precise Mousing Surface**, 3M, 612/733-1110, \$15. Throw out your neoprene pad and treat your mouse to a deluxe surface. *Jan 97, p. 56*
 - ★★★★/8.2 **AirCommunicator Lite**, Air Communications, 408/567-8000, \$695. Cellular fax modem with flair offers a complete solution. *Nov 96, p. 79*
 - ★★★★/8.5 **AlphaSmart Pro 2.1**, Intelligent Peripheral Devices, 408/252-9400, \$269. Intelligent keyboard works as stand-alone input device. *Mar 97, p. 82*
 - ★★★★/7.5 **DynaTek CDM 4001**, DynaTek Automation Systems, 902/832-3000, \$2889. Hard drive/CD-R combo unit simplifies CD-ROM mastering. *Mar 97, p. 78*
 - ★★★★/8.8 **MicroWorks**, Cambridge SoundWorks, 617/332-5936, \$349. In terms of price for performance, speaker system is in a class by itself. *Dec 96, p. 66*
 - ★★/3.1 **Midi Land 535/818 Systems**, Midi Land, 909/592-1168, 818 desktop speaker \$79.95, \$35 subwoofer \$239.95. Speaker system has mediocre sound quality. *Nov 96, p. 72*
 - ★★★★/6.0 **NovaModem 288 1.0**, NovaLink Technologies, 510/249-9777, \$229. Decent performance from PowerBook PC Card modem. *Nov 96, p. 94*
 - ★★★★/7.8 **Sagem Planet ISDN GeoPort Adapter**, Sagem, 408/446-8693, \$395. ISDN terminal adapter breaks serial port speed barrier. *Mar 97, p. 66*
 - ★★★★/7.6 **SoundWorks**, Cambridge SoundWorks, 617/332-5936, \$219.95. High-quality audio product at an affordable price. *Dec 96, p. 66*
 - ★★★/5.5 **Stingray 4.0**, CoStar, 203/661-9700, \$55. Trackball offers flexible design but limited programmability. *Feb 97, p. 70*
- continues*



netOctopus.

When it comes to network control, it's like having eight arms.



Today, it's not enough to simply "own" information resources. You've got to be able to reach out, identify and control them, to make them truly work for you. netOctopus allows you to supervise, manage, and update an entire network of Mac and PC workstations from your desktop computer. Install and update software remotely.

Inventory hardware and software. Troubleshoot. Meter software usage. Find out why network control is no longer a luxury. It's absolutely indispensable. **Call 1-800-847-3982 (Ext. 727)** and find out how control is just a few clicks away.

 **DATAWATCH®**

Datawatch Corporation • 234 Ballardvale Street • Wilmington, MA 01887 • Tel 508.988.9700 • Fax 508.988.2040 • <http://www.datawatch.com>

Circle 35 on reader service card

Star Ratings

- ★★★★7.0 **Supra Simple Internet 33.6 1.0**, Diamond Multimedia, 360/604-1400, \$159.95. Modem makes Internet access quick and easy. *Jan 97, p. 90*
- ★★★/5.2 **TrackMan Marble**, Logitech, 510/795-8500, \$99. Restrictive design and unimpressive software. *Feb 97, p. 70*
- ★★★★8.5 **Turbo Mouse 5.0**, Kensington, 415/572-2700, \$110. MouseWorks software makes programmable trackball a standout. *Feb 97, p. 70*
- ★★★/6.9 **Viewpoint Model 100**, Lightware, 503/641-7873, \$5795. Much light, some sound in a surprisingly small projector. *Nov 96, p. 85*
- ★★★/6.4 **WebRamp**, Trancell Systems, 408/988-5353, \$899. ISDN router is easy to use, but missing some features. *Mar 97, p. 70*
- ★★★★7.1 **Yamaha System 45**, Yamaha, 714/522-9240, \$249.95. Speakers give you decent sound at a decent price. *Nov 96, p. 72*

PRINTERS

- ★★★/6.9 **Apple Color StyleWriter 1500**, Apple Computer, 408/996-1010, \$249. Lackluster performance and image quality mark this color ink-jet. *Feb 97, p. 140*
- ★★★★7.5 **Apple Color StyleWriter 2500**, Apple Computer, 408/996-1010, \$349. Relatively fast color ink-jet has fair image quality. *Feb 97, p. 140*
- ★★★★7.3 **BJC-4550**, Canon Computer Systems, 714/438-3000, \$499. Ink-jet produces beautiful images with optional photo ink kit. *Feb 97, p. 140*
- ★★★/6.5 **Canon CLBP 360PS**, Canon USA, 516/328-5000, \$12,500. Color laser printer had good text output, but other tests were mediocre. *Nov 96, p. 157*
- ★★★/6.7 **Color LaserWriter 12/600 PS**, Apple Computer, 408/996-1010, \$6989 (estimated). Slow speed but excellent text output. *Nov 96, p. 157*
- ★★★★7.8 **DeskJet 870Cse**, Hewlett-Packard, 408/246-4300, \$499. Outstanding color ink-jet for inexpensive office printing. *Feb 97, p. 140*
- ★★★/6.9 **DeskJet 1600CM**, Hewlett-Packard, 408/246-4300, \$1999. Expensive ink-jet printer offers good speed and crisp text. *Feb 97, p. 140*
- ★★★/5.9 **DeskWriter 600**, Hewlett-Packard, 408/246-4300, \$199. Decent speed and average print quality at a nice price. *Feb 97, p. 140*
- ★★★★7.2 **DeskWriter 680c**, Hewlett-Packard, 408/246-4300, \$279. Color ink-jet offers above-average image quality. *Feb 97, p. 140*
- ★★★★7.2 **Digital Science 8650 PS**, Eastman Kodak, 800/235-6325, \$10,795 plus \$995 for Ethernet. Top performance and solid image quality highlight Kodak's newest dye-sub printer. *Oct 96, p. 60*
- ★★★/5.1 **HP Color LaserJet 5M**, Hewlett-Packard, 408/246-4300, \$9195. Inferior output; slow; messy consumables. *Nov 96, p. 157*
- ★★★/5.8 **LaserWriter 12/640 PS**, Apple Computer, 408/996-1010, \$1599 to \$1829. Workgroup printer is slower—but cheaper—than HP's LaserJet 5M. *Oct 96, p. 62*
- ★★★/6.6 **magicolor CX/32**, QMS, 334/633-4300, \$7999. Unexceptional output for this color laser printer. *Nov 96, p. 157*
- ★★★/5.4 **MD-2010**, Alps Electric, 408/432-6000, \$499. Low-end color printer is slow, with poor-quality output. *Feb 97, p. 140*
- ★★★★7.0 **Optra C**, Lexmark International, 606/232-2000, \$6849. This color laser printer has easy-to-use controls; good text and graphics output. *Nov 96, p. 157*

- ★★★★7.9 **Phaser 350**, Tektronix, 503/682-7377, \$3495. Solid-ink printer delivers laser-quality output. *Nov 96, p. 67*
- ★★★★7.6 **Phaser 550**, Tektronix, 503/685-3067, \$6995. Fastest color laser printer tested; superior output; true 1200-dpi resolution. *Nov 96, p. 157*. **Editors' Choice** for best color laser printers.
- ★★★★7.8 **Stylus Color 500**, Epson America, 310/782-0770, \$279. Good price, output, and speed, but this color ink-jet is messy. *Feb 97, p. 140*
- ★★★★7.2 **XPrint 4915 Plus**, Xerox, 716/442-4028, \$4995. Top-notch graphic output; a great color laser printer value. *Nov 96, p. 157*. **Editors' Choice** for best color laser printers.
- ★★★/6.9 **XPrint 4925 Plus**, Xerox, 716/442-4028, \$8995. Color laser printer's graphics results are among the best, but speed was unimpressive. *Nov 96, p. 157*

SCANNERS

- ★★★★7.5 **Agfa StudioStar**, Agfa, 508/658-5600, \$989. Graphics pros will treasure scanner's high-quality scans and powerful software. *Feb 97, p. 62*
- ★★/4.8 **Apple Color OneScanner 1200/30**, Apple Computer, 408/996-1010, \$799. A big disappointment; offers little advantage over its lower-priced predecessor. *Feb 97, p. 62*
- ★★/3.7 **ArtiScan Z1-600**, Tamarack Technologies, 714/744-3979, \$499. Slow, unimpressive machine makes a rumbling noise while scanning. *Mar 97, p. 131*
- ★★/3.3 **ArtiScan Z1-1200**, Tamarack Technologies, 714/744-3979, \$699. Slow, unimpressive, noisy scanner can scan at 600 dpi and 30 bit. *Mar 97, p. 131*
- ★★★/5.1 **Color OneScanner 600/27**, Apple Computer, 408/996-1010, \$549 (estimated). Sleek and compact, but can't compete with less-expensive models. *Mar 97, p. 131*
- ★★★★8.4 **Epson Expression 636**, Epson America, 800/922-8911, \$899 as tested. Low-cost color scanner gets the nod for all-around use. *Feb 97, p. 62*
- ★★/3.8 **ImageReader Elite**, Info, 408/538-2500, \$399. Small, inexpensive scanner delivers mediocre performance. *Mar 97, p. 131*
- ★★/3.8 **ImageReader FB**, Info, 408/538-2500, \$549. Painfully slow scanner with anemic software and awkward case design. *Mar 97, p. 131*
- ★★/3.8 **ScanAce II**, PacificImage Electronics, 310/214-5281, \$899. Bulky scanner performed well in color, gray-scale, and resolution tests. *Mar 97, p. 131*
- ★★/4.9 **ScanJet 4P**, Hewlett-Packard, 208/323/2551, \$615. Outstanding color fidelity, but large, heavy scanner has weak software. *Mar 97, p. 131*
- ★★/3.8 **ScanMaker E3**, Microtek Lab, 310/297-5000, \$329 (estimated). Inexpensive, but disappointing speed, color, and gray-scale test results. *Mar 97, p. 131*
- ★★/3.7 **ScanMaker E6**, Microtek Lab, 310/297-5000, \$599. 30-bit color, but otherwise no better than the ScanMaker E3. *Mar 97, p. 131*
- ★★★/5.9 **ScanTouch 110**, Nikon Electronic Imaging, 516/547-4355, \$299 (estimated). A relatively fast scanner, with good color fidelity and an attractive price. *Mar 97, p. 131*
- ★★★/5.3 **ScanTouch 210**, Nikon Electronic Imaging, 516/547-4355, \$699 (estimated). Slower and more expensive than the ScanTouch 110, but 600 dpi. *Mar 97, p. 131*
- ★★★★7.1 **SilverScanner Pro**, La Cie, 503/520-9000, \$499. Great low-cost scanner with compact design, and good software. *Mar 97, p. 131*. **Editors' Choice** for best low-end scanners.

- ★★★/6.9 **SnapScan**, Agfa, 508/658-5600, \$389 (estimated). Quiet, fast scanner has good scanning software. *Mar 97, p. 131*
- ★★★★8.4 **Vista-S6E**, Umax Technologies, 510/651-4000, \$345 (estimated). Inexpensive scanner did well on most of our tests, has good software. *Mar 97, p. 131*. **Editors' Choice** for best low-end scanners.
- ★★★/6.6 **Vista-S12E**, Umax Technologies, 510/651-4000, \$649. Fast, with minimal image noise, but the Vista S-6E is a better choice. *Mar 97, p. 131*

STORAGE

- ★★★★7.6 **2.6GB Optical**, La Cie, 503/520-9000, \$1999. Low price for this format, great software, and high-performance Sony mechanism. *Oct 96, p. 141*. **Editors' Choice** for best optical drives.
- ★★★/6.2 **640MB MO Optical**, La Cie, 503/520-9000, \$599. Decent performance, low media cost; but no performance match for Iomega's Jaz drive. *Oct 96, p. 141*
- ★★★★7.1 **8x External CD-ROM Drive for Mac**, La Cie, 503/520-9000, \$199 (estimated). Price/performance leader with well-implemented audio software. *Dec 96, p. 145*. **Editors' Choice** for best CD-ROM drive.
- ★★★/6.6 **8 Plex**, Plextron, 408/980-1838, \$539. Uses its own mechanism, FWB driver software, but costs more than other bundles. *Dec 96, p. 145*
- ★★★/5.8 **Advantage 8x External CD-ROM**, MicroNet Technology, 714/453-6000, \$249 (estimated). Performed well, but lacks power-on light and external audio-control buttons. *Dec 96, p. 145*
- ★★★★7.2 **APS PD4**, APS Technologies, 816/483-1600, \$499.95. Excellent low-priced, small-footprint unit, bundled with APS PowerTools, PowerCD. *Oct 96, p. 141*. **Editors' Choice** for best optical drives.
- ★★★/6.9 **CDS658PSD**, Dynatek, 902/832-3000, \$349. Nicely designed; offers speedy performance and superior driver software. *Dec 96, p. 145*
- ★★★/5.9 **Cheetah Plus**, Plasmon Data, 408/474-0100, \$2575. Minimal documentation, mediocre performance reduce this drive's appeal. *Oct 96, p. 141*
- ★★★★7.4 **DisKovery 2600MO**, Optima Technology, 714/476-0515, \$2395. Reasonable price, great software, and uses a high-performance Sony mechanism. *Oct 96, p. 141*
- ★★★/6.7 **EZFlyer 230MB**, SyQuest, 510/226-4000, \$299; cartridges \$29.95. SyQuest's new removable drive tries (again) to outzip Iomega. *Oct 96, p. 56*
- ★★★/5.4 **HammerDisk 230**, FWB, 415/325-4392, \$769. Overpriced; uses older, slow technology. *Oct 96, p. 141*
- ★★★/5.0 **HP SureStore Optical 2600FX**, Hewlett-Packard, 970/635-1000, \$2995. Poor performance in its class, a lead brick of a case, and overpriced. *Oct 96, p. 141*
- ★★/4.9 **LF-7300A**, Panasonic Communications & Systems, 201/348-7000, \$2995. Overpriced and slow; it can't compete with a 2.6GB MO drive. *Oct 96, p. 141*
- ★★/4.8 **PCA80SC**, Philips Electronics, 408/773-1304, \$299. Disappointing performance, though excellent audio software. *Dec 96, p. 145*
- ★★★/6.9 **PD/CD**, Plasmon Data, 408/474-0100, \$620 (estimated). This dual-purpose drive is worth considering if you need a CD-ROM drive. *Oct 96, p. 141*
- ★★★/5.2 **PD/CD-ROM**, Panasonic Communications & Systems, 201/348-7000, \$649.95. Nonstandard connectors, DIP SCSI ID settings, and poor documentation bring this drive down. *Oct 96, p. 141*

continues

Are you the kind of person who always wants everything your own way?

Cool!

EarthLink's Internet access now includes your Personal Start Page.

Hi Wendy

Refer your friends and win!

Until the end of 1996, you can participate in a special referral program that will qualify you to participate in cool contests and events. Win T-shirts, jackets, gift certificates, or a seven day cruise! For more information see our [Special Agent](#) site.

YOUR EMAIL

YOU HAVE 3 EMAIL MESSAGES

EARTHLINK

[HOME PAGE](#)
[HELP](#)
[SERVICES](#)
[THE ARENA](#)
[LINK](#)
[THE STORE](#)

START PAGE

[HELP](#)
[MODIFY](#)

EARTHLINK NETWORK

[The Arena](#)

SEARCH


SEARCH

☐ INFOSEEK
☐ EMBROOK
☐ DOWNLOAD.COM
☒ EARTHLINK


WEATHER

[LOS ANGELES](#)

Monday


Partially cloudy and cool
55 / 69

Tuesday


Rainy and cool
60 / 66

NEWS [\[modify\]](#)

Your Start Page news is provided by [Individual](#)

Travel & Tourism

[Airlines Offer Travel Barriers Up to 75% Off Consumers Can...](#)
[Vanguard Airlines' Incredibly Low Everywhere-We-Go Sale](#)
[Guest service roars with Vail and Beaver Creek revolutionary in-flight...](#)
[Pennsylvania Governor Ridge Announces Unique Regional Public/Private Partnerships to Impact...](#)
[U.S. space-style ride for the public -- at \\$10,000](#)
[Sampling Japanese Theme Parks](#)

Interactive Games & Entertainment

[Acclaim Entertainment's Space Jam Video/PC Game Makes a Fast Break...](#)
[LIVE Entertainment Offers Walk-on Role in Motion Picture to Web...](#)
[Tim Allen, Dana Carvey, Dennis Miller, Kevin Bacon, Carl Reiner...](#)
[Digital maps of New England to make life easier for...](#)

Music

[Online riffs accused of copyright co-opting...](#)
[Rolling Stones to tour U.S. British newspaper](#)
[Windham Hill Composer/Producer Jim Brickman to Release Third Album 'Pictures'...](#)
[Bone Thugs-N-Harmony Keep Promise to Take Tre to the Top...](#)
[Regina Regina Release Debut CD on Giant Records New Duo...](#)

STOCK QUOTES [\[modify\]](#)

Quotes are provided by [PC Quote](#). Data is delayed 20 minutes unless noted.

Company Symbol	(MSFT)	(T)	(IBM)	(ATV)	(AAPL)	(NSCP)	(RNDU)	(COM)
Last Sale	79 7/8	39 1/8	151 7/8	10 3/4	22 1/2	54 3/8	6337.16	1283.04
Net Change	+ 3 1/8	0	+ 3 1/4	- 1 3/8	- 1/8	- 1 5/8	+ 28.83	+ 16.72
Time of Last	16:01	17:01	16:29	16:00	16:01	16:01	14:04	13:44

WEB LINKS [\[modify\]](#)

EarthLink	Sports	Entertainment	Finance	My Favorites
EarthLink Home	EarthLink Sports	EarthLink's Hollywood	EarthLink's Finance	UNIX Reference Desk
Daily bLink	ESPN	MovieLink 777FILM	Smart Money	News.com
The Arena	SportsLine USA	Hollywood Online	CNN Finance Network	Hotwired
The EarthLink Store	The Sports Network	Movie Review	NASDAQ	CNN
What's Hot	The Sports Server	The Internet Movie Database	Investor Dictionary	Word
Technical Support		The Ultimate TV List		Shareware.com
				USC

- 1 STYLIZE** Choose how your page looks and what goes on it.
- 2 GOT E-MAIL?** We'll tell you as soon as it comes in.
- 3 NEWS** Select from 25 categories you're interested in and we'll gather it for you from over 700 sources.
- 4 STOCK QUOTES** Watch your wallet fatten with your choice of stock quotes updated by PC Quote.
- 5 PREMIUM CONTENT** Enjoy discounted rates and direct links to services from Quote.com, CompuServe® and others.
- 6 WEATHER** Find out if you need shades or a scarf, with a 4-day local forecast.
- 7 WEB LINKS** Select personal links to your favorite Web sites so they're only one click away.
- 8 WEB SEARCH** If it's not on your Start Page, use a keyword to search the Internet to find exactly what you're looking for.

Unlimited Internet
\$19.95 a month

1 800-395-8425



It's your Internet™

Free software package for Windows™, Windows95™ and Macintosh®
www.earthlink.net Info e-mail:info@earthlink.net

All the goodies you expect... and more!

Personal Start Page Netscape Navigator™ Multiplayer Gaming Over 500 Dial-up numbers 24/7 Help 800# Free Website Chat ISDN Business Solutions National Frame Relay The Net "A"-Rated Pournelle's Choice Yahoo Best

©1997 EarthLink Network, Inc. Trademarks are property of their respective owners. All rights reserved.
EarthLink Network, Inc. 3100 New York Drive, Pasadena, CA 91107

Circle 8 on reader service card

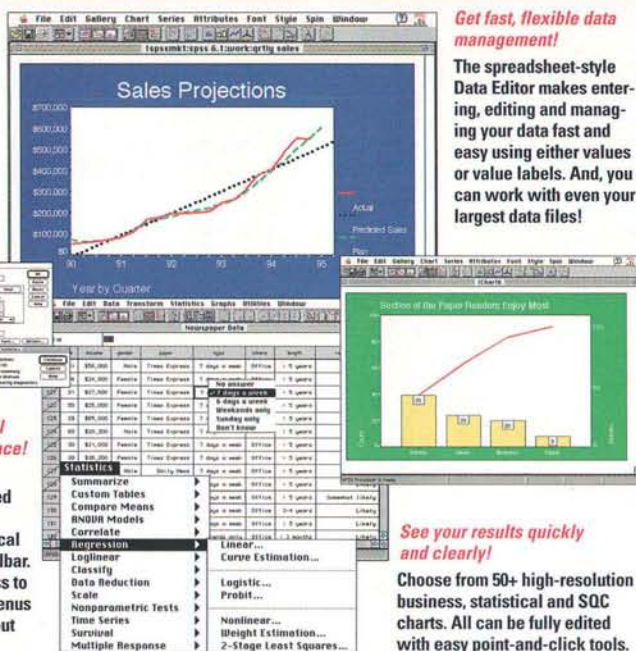
Star Ratings

SPSS 6.1 for the Macintosh® Real Stats. Real Easy.

Accelerated
for Power
Mac!

Get answers to tough questions using in-depth statistics!

Use 60+ statistics from basics such as counts and crosstabs to more sophisticated statistics including factor, regression and logistic regression.



Work faster with an all new Macintosh interface!

Learn faster using an online tutorial and speed up analysis with task-oriented help, a statistical glossary and a new toolbar. Plus, you get fast access to all statistics through menus and dialog boxes without typing commands!

Get fast, flexible data management!

The spreadsheet-style Data Editor makes entering, editing and managing your data fast and easy using either values or value labels. And, you can work with even your largest data files!

See your results quickly and clearly!

Choose from 50+ high-resolution business, statistical and SOC charts. All can be fully edited with easy point-and-click tools.

Use SPSS 6.1 for the Macintosh when you need in-depth answers quickly and easily. Go beyond summary statistics and spreadsheet row-and-column math by using the right tool for the job. SPSS enables you to answer tough questions like:

- How satisfied are my customers?
- What will my sales be next quarter?
- What are the patterns in my data?

Survey research

- Explore consumer awareness
- Compare perceptions of products
- Discover preferences by group

Marketing and sales analysis

- Analyze your customer database
- Forecast sales by product and region
- Improve mailing responses



Call 1(800)457-8287

Quality improvement

- Assess process capability
- Reduce nonconformance
- Spot unnatural patterns of variation

Research of all types

- Test hypotheses
- Determine group differences
- Track performance over time

Get a great value — order now!

Call 1(800)457-8287

or Fax 1(800)841-0064
or mail to: SPSS Inc., 444 N. Michigan Ave.
Chicago, IL 60611
American Express, Discover, MasterCard,
VISA and I.M.P.A.C. cards accepted

Athens • Chicago • Washington, D.C. • Bologna • Chertsey • Gornichem • Madrid • Munich • New Delhi • Paris • Singapore • Stockholm • Sydney • Tel Aviv • Tokyo • And distributors worldwide

Try SPSS 6.1 for the Macintosh
with our unconditional, 60-day
money-back guarantee.

SPSS
Real Stats. Real Easy.™

Circle 85 on reader service card

- ★★★/6.4 Phasewriter Dual PD, Toray Marketing & Sales, 415/341-7152, \$649 (estimated). Neither price nor performance can keep pace with the competition's. Oct 96, p. 141
- ★★★/6.8 PowerMO 2600, Olympus Image Systems, 516/844-5000, \$2199 (estimated). Reasonable price and a two-year warranty, but middle-of-the-pack performance. Oct 96, p. 141
- ★★★/5.5 SCSI Express CD37, Micro Design International, 407/677-8333, \$505. Slightly slower than the 8x drives, this 6.7x drive offered sturdy design and well-designed driver software. Dec 96, p. 145
- ★★★/5.8 T4-2600, Maxoptix, 510/353-9700, \$2425. No formatting software included and slow performance in its class. Oct 96, p. 141

VIDEO/DISPLAY

- ★★★/6.3 Diamond Pro 91TXM, Mitsubishi Electronics America, 714/220-2500, \$1699. Pricey for an average product, with below-average image quality. Jan 97, p. 125
- ★★★/6.1 G200, IBM, 914/766-1900, \$1469. Easy-to-use display, but below-average image quality. Jan 97, p. 125
- ★★★/7.6 G810, ViewSonic, 909/869-7976, \$1595. A great price for a top pick in both usability and image quality. Jan 97, p. 125. **Editors' Choice** for best two-page monitors.
- ★★★/6.7 Multigraph 445Xi, Nokia Display Products, 415/331-4244, \$1899. A little pricey for a monitor that offers only medium image quality. Jan 97, p. 125
- ★★★/6.7 Multiple Scan 20, Apple Computer, 408/996-1010, \$2149. Good overall image quality, but pricey for its category. Jan 97, p. 125
- ★★★/6.6 MX21F-M, Mag InnoVision, 714/751-2008, \$1699. Average price for average usability and image-quality scores. Jan 97, p. 125
- ★★/4.7 P201, IBM, 914/766-1900, \$2635. Poor image quality and hard to use. Jan 97, p. 125
- ★★★/6.2 PanaSync S21, Panasonic, 201/348-7000, \$1899. Good controls, but a little expensive for below-average image quality. Jan 97, p. 125
- ★★★/5.8 PrecisionView 21, Radius, 408/541-6100, \$2749. Overpriced for only average test scores and a one-year warranty. Jan 97, p. 125
- ★★★/6.9 Pro P810, ViewSonic, 909/869-7976, \$1745. Superb image quality, but costlier than its sibling, the G810. Jan 97, p. 125
- ★★★/7.4 RasterOps SuperScan Mc20, Hitachi NSA, 617/461-8300, \$1599. Good bargain for an overall good performer. Jan 97, p. 125
- ★★★/6.6 RasterOps SuperScan Mc801HR, Hitachi NSA, 617/461-8300, \$2199. A bit costly for only above-average image quality, mediocre controls. Jan 97, p. 125
- ★★★/6.4 SyncMaster 21 GLs, Samsung Electronic America, 201/971-0400, \$1959. Expensive unit for overall average performance. Jan 97, p. 125
- ★★★/5.6 Ultra 20-M, Princeton Graphic Systems, 714/751-8405, \$1249. Inexpensive, but you get what you pay for—not high quality. Jan 97, p. 125
- ★★★/6.4 VisionMaster 21, Iiyama North America, 215/957-6543, \$1945. Overall a good unit, but not good enough to justify the price. Jan 97, p. 125
- ★★★/8.3 VisionMaster Pro 21, Iiyama North America, 215/957-6543, \$1995. Top overall image quality with clear on-screen controls. Jan 97, p. 125. **Editors' Choice** for best two-page monitors. **m**



A demonstration of the new Animation Series from PhotoDisc.™

To really attract attention, add motion and sound to your web site with animated GIFs and Shockwave files. Call us for your free "Sneak Peek" Animation CD at 1 800 528 3472, or just visit our web site. And hey, quit jumping around. People are starting to talk.

download any image anytime: www.photodisc.com



Circle 114 on reader service card

Mac Superguide

MACWORLD SELECTS THE BEST MAC OS SYSTEMS

Looking for a new Macintosh but confused about which of all the new models to buy? Look no further. Each month, the *Mac Superguide* section provides *Macworld's* picks for the best Mac OS systems. Typically we recommend three top choices: an Editors' Choice winner and two runners-up. Occasionally we'll have more or fewer top choices in categories with unusually competitive—or uncompetitive—options.

You'll also find *Macworld* Star Ratings and *Macworld* Lab performance benchmarks for all Mac OS systems shipping as we went to press in late January 1997. You may read about other Mac models in *Macworld* and elsewhere, but those are prototypes not yet available—the only systems rated here are those you can actually buy.

For Mac systems reviewed earlier, the summaries below include the issue date and page number of the article. In some cases, such as faster versions of existing Macs, there is no full review and thus no cross-reference. New systems are indicated in the benchmark by the ► icon.

Star Ratings and Editors' Choice designations may have changed since previous issues, based on the current lineup of systems and any price changes; the winners listed here are the current ones.

All prices but Power Computing's are company-estimated street prices; actual price may vary. Power Computing sells direct, so the prices listed here are the ones you would actually pay. Unless otherwise noted, all systems include a keyboard and mouse, but not a monitor or modem. Apple systems do not include a keyboard except for Performa and PowerBook models. DayStar systems do not include a hard drive, RAM, keyboard, or mouse, although we add their cost in determining the prices reported here.

For price comparisons, figure on spending about \$800 for a 17-inch monitor and, if they're needed, \$175 for a modem, \$100 for an extended keyboard, \$50 for a mouse, \$400 for a 2GB hard drive, \$175 for 2MB of VRAM, and \$100 for 16MB of RAM.

OFFICE SYSTEM

EDITORS' CHOICE

★★★★/7.3 **PowerCenter 150** A great price, plus more expansion and better performance than Apple's Power Mac 7600/132, make the PowerCenter 150 minitower the ideal general-purpose office Mac for most people. Power Computing does skimp on the video RAM but is generous on the cache. Power Computing (512/388-6868): \$2195, 16MB RAM, 512K cache, 1MB VRAM (4MB maximum), 1.0GB hard drive, 8x CD, 3 free drive bays, 3 PCI slots. *Dec 96, p. 106*

EDITORS' CHOICE

★★★★/7.0 **Power Macintosh 8500/180** Now that Apple has dropped the price \$1000, this soon-to-be-discontinued speed demon is a great buy even for office use. Apple Computer (408/996-1010): \$2699, 16MB RAM, 256K cache, 2MB VRAM (4MB maximum), 2.0GB hard drive, 8x CD, 1 free drive bay, 3 PCI slots. *Dec 96, p. 106*

★★★/6.7 **Power Macintosh 7600/132** Thanks to a recent price reduction, Apple's flagship office Mac is now \$400 less than the PowerCenter 150, since Apple is phasing out this system in favor of the new 7300. While the 7600 is a bit slower and less expandable than the

PowerCenter, it is nonetheless a strong performer. An added bonus for some people is the built-in video-input circuitry. Apple Computer (408/996-1010): \$1799, 16MB RAM, 256K cache, 2MB VRAM (4MB maximum), 1.2GB hard drive, 8x CD, 1 free drive bay, 3 PCI slots. *Dec 96, p. 106*

PORTABLE SYSTEM

EDITORS' CHOICE

None Apple's portables have been lackluster recently, despite the introduction of the PowerBook 1400 series in late fall 1996 and the 3400 in February 1997. None warrants the ultimate recommendation of an Editors' Choice award.

★★★/6.4 **PowerBook 1400cs/117** Apple's newest notebook accommodates an optional CD-ROM drive. The result is a better system than the old 5300 series, but no barn burner. The new, larger LCD screen is nice, even though it's passive matrix. Apple Computer (408/996-1010): \$2495, 12MB RAM, 750MB hard drive, optional 6x CD, 11.3-inch passive matrix LCD, 1 drive bay, 2 PC Card slots (\$3500 model 1400c/117 has active matrix LCD and 1.0GB hard drive). *Jan 97, p. 58*

SMALL-OFFICE/HOME-OFFICE SYSTEM

EDITORS' CHOICE

★★★★/7.3 **PowerBase 200** Pro-level performance for a price less than that of Apple's Performa 6400/200, plus a strong selection of features and greater expansion capability, make this minitower system a great buy for consultants and small businesses. Also, unlike its 240MHz cousin, this model is actually available in quantity. Power Computing (512/388-6868): \$1895, 16MB RAM, 256K cache, 2MB VRAM (4MB maximum), 1.2GB hard drive, 8x CD, 3 free drive bays, 3 PCI slots. *Jan 97, p. 60*

★★★★/7.1 **Performa 6400/200** Good performance contrasts with limited inter-



A great price and solid performance make Power Computing's PowerCenter 150 the top office pick.

nal expansion. But a good price makes this tower more attractive despite its limitations. A unique feature is its TV tuner slot. Apple Computer (408/996-1010): \$2119, 16MB RAM, 256K cache, 1MB VRAM (1MB maximum), 2.4GB drive, 8x CD, 1 free drive bay, two 7-inch PCI slots, TV/FM tuner slot, 28.8-Kbps modem. *Dec 96, p. 106*

EDUCATION SYSTEM

EDITORS' CHOICE

★★★★/7.3 **PowerBase 180** Strong performance, low price, good expandability, and features such as 3-D video acceleration make this tower a great buy for cash-strapped schools and students. Power Computing (512/388-6868): \$1495, 16MB RAM, 256K cache, 2MB VRAM (4MB maximum), 1.2GB hard drive, 8x CD, 3 free drive bays, 3 PCI slots. *Jan 97, p. 60*

EDITORS' CHOICE

★★★★/7.1 **Power Macintosh 5400/180** This all-in-one Mac—available only to schools—eliminates the need for several cables that could get damaged or stolen in a school setting. Rich in features—including a good monitor—and moderate in speed, the 5400 is a good classroom Mac. Apple Computer (408/996-1010): \$1999, 16MB RAM, 1MB VRAM (1MB maximum), 1.6GB hard drive, 4x



Apple's Performa 6400/200 offers good speed at a good price for home and small-business users.

REAL PRODUCTS REAL RATINGS

Reviews you can trust: Unlike other publications, *Macworld* rates only final shipping products, not prototypes. What we review is what you can actually buy.
Outstanding ★★★★★ = 9.0–10.0 Very Good ★★★★ = 7.0–8.9 Good ★★★ = 5.0–6.9 Flawed ★★ = 3.0–4.9 Unacceptable ★ = 0–2.9

CD, no free drive bays, 7-inch PCI slot, TV/FM tuner slot, Ethernet card, internal stereo speakers, monitor included.

IMAGE-EDITING AND 3-D GRAPHICS SYSTEM

EDITORS' CHOICE

★★★★/8.0 **Power Macintosh 9500/180MP** A solid second in performance at half the price—a terrific deal for pros who need a multiprocessor system. The case doesn't hold as much as the Genesis MP's, and it's not as easy to add internal peripherals. Its prices have dropped dramatically because Apple is phasing it out in favor of the new 9600/200MP. Apple Computer (408/996-1010): \$3999, 32MB RAM, 512K cache, 2MB VRAM (4MB maximum), 2.0GB hard drive, 8x CD, 2 free drive bays, 6 PCI slots. Dec 96, p. 120

EDITORS' CHOICE

★★★★/7.4 **Genesis MP 720+** The ultimate Mac system speeds through multiprocessor (MP)-enabled programs like Adobe Photoshop and Strata Studio Pro Blitz. The oversize tower leaves room for everything you might need: you could equip it with an internal RAID system and a recordable CD-ROM drive and still have free bays. DayStar Digital (770/967-2077): \$10,714, 16MB RAM, 512K cache, 4MB VRAM (4MB maximum), 2.0GB hard drive, 8x CD, 7 free drive bays, 6 PCI slots. Dec 96, p. 120



DayStar's Genesis MP 720+ is the ultimate image-editing and rendering Macintosh.

★★★★/7.2 **Genesis MP 360+** Like the Genesis MP 720+, the MP 360+ features a cavernous tower case to hold an impressive array of peripherals. Like the 9500/180MP, it offers strong performance at a lower price than the 720+. But the 9500/180MP is a better deal unless you need the internal expansion. DayStar Digital (770/967-2077): \$7814, 16MB RAM, 512K cache, 4MB VRAM (4MB maximum), 2.0GB hard drive, 8x CD, 7 free drive bays, 6 PCI slots. Dec 96, p. 120

PUBLISHING AND DESIGN SYSTEM

EDITORS' CHOICE

★★★★/8.2 **PowerTower Pro 225** The fastest single-CPU Mac offers the top

performance needed for publishing pros. A recent price reduction of \$700, combined with an increase in included RAM from 16MB to 32MB, put this decked-out configuration of the PowerTower Pro 225 far out front in the price/performance race. Power Computing (512/388-6868): \$4295, 32MB RAM, 1MB cache, 8MB VRAM (8MB maximum), 2.0GB hard drive, 8x CD, 6 free drive bays, 6 PCI slots. Dec 96, p. 120

EDITORS' CHOICE

★★★★/8.0 **SuperMac S900/225** Nearly as fast as Power Computing's same-priced PowerTower Pro 225, but with fewer free drive bays, the SuperMac S900/225 is a solid second choice for an expandable, high-performance system. The S900/225 also has an easier-to-upgrade case design than competing Apple and Power Computing towers. Umax Computer (510/226-6886): \$4295, 16MB RAM, 512K cache, 8MB VRAM (8MB maximum), 2.1GB hard drive, 8x CD, 4 free drive bays, 6 PCI slots. Dec 96, p. 120

★★★★/7.9 **PowerTower Pro 200** The second-fastest single-CPU Mac offers the high performance needed for publishing pros. And for \$500 less than a comparably equipped PowerTower Pro 225, it's a better price/performance deal: a 13 percent lower price for 8 percent less performance. Power Computing (512/388-6868): \$3295, 16MB RAM, 1MB cache, 2MB VRAM (8MB maximum), 2.0GB hard drive, 8x CD, 6 free drive bays, 6 PCI slots. Dec 96, p. 120

MULTIMEDIA AND VIDEO CREATION SYSTEM

EDITORS' CHOICE

★★★★/7.4 **Genesis MP 720+** The ultimate Mac system speeds through multiprocessor (MP)-enabled programs like Adobe Premiere and After Effects. Its oversize tower case's high expandability means you could equip it with an internal RAID system and a recordable CD-ROM drive and still have free bays. DayStar Digital (770/967-2077): \$10,714, 16MB RAM, 512K cache, 4MB VRAM (4MB maximum), 2.0GB hard drive, 8x CD, 7 free drive bays, 6 PCI slots. Dec 96, p. 120

WEB AND INTRANET SERVER SYSTEM

EDITORS' CHOICE

★★★★/8.2 **PowerTower Pro 225** The fastest single-CPU Mac offers the top performance needed for Web serving. A recent price reduction of \$700 puts this system far out front in the price/performance race. Its only drawback is the clumsy case design, which makes upgrading difficult. Power Computing (512/388-6868): \$3795, 16MB RAM, 1MB cache, 2MB VRAM (8MB maximum), 2.0GB hard drive, 8x CD, 6 free drive bays, 6 PCI slots. Dec 96, p. 120

Macworld LAB TEST

Every Mac System Rated

Longer bars are better. Core results are times as fast as a Centris 650 (Centris 650 = 1.0). Multiprocessor results are times as fast as a Power Mac 9500/150 (9500 = 1.0). Only shipping systems are tested and rated.

	Core Mac Performance	Star Rating*
New this issue. Editors' Choice winners in red.		
Apple Computer		
Performa 6360	4.0	★★★/5.3
Performa 6400/180	4.0	★★★/6.6
Performa 6400/200	5.6	★★★★/7.1
PowerBook 1400c/117 **	2.7	★★★/6.4
PowerBook 1400cs/117 **	2.8	★★★/6.4
▶ PowerBook 1400c/133	3.5	★★★/6.6
Power Macintosh 5260/120 ***	2.6	★★★/5.5
Power Macintosh 5400/180 ***	4.3	★★★★/7.1
Power Macintosh 6400/200 ***	4.5	★★★/6.4
Power Macintosh 7200/120	4.1	★★/4.8
Power Macintosh 7600/132	5.0	★★★★/6.7
Power Macintosh 8500/150	5.9	★★★/6.6
Power Macintosh 8500/180	6.7	★★★★/7.0
Power Macintosh 9500/180MP	6.9	★★★★/8.0
Power Macintosh 9500/200	7.7	★★★★/7.5
DayStar Digital		
Genesis MP 360+	7.4	★★★★/7.2
Genesis MP 720+	7.3	★★★★/7.4
Motorola Computer Group		
StarMax 3000 DT603e-160	5.1	★★★/5.7
StarMax 3000 DT603e-200	5.8	★★★/6.8
StarMax 3000 MT603e-160	5.1	★★★/5.5
StarMax 3000 MT603e-200	5.8	★★★/5.8
StarMax 4000 DT604e-160	6.6	★★★/6.2
StarMax 4000 MT604e-160	6.9	★★★/6.0
StarMax 4000 MT604e-200	7.7	★★★/6.0
Power Computing		
PowerBase 180	5.4	★★★★/7.3
PowerBase 200	5.8	★★★★/7.3
PowerBase 240	6.4	★★★★/7.6
PowerCenter 150	5.6	★★★★/7.3
PowerTower Pro 180	7.8	★★★★/7.6
PowerTower Pro 200	8.5	★★★★/7.9
PowerTower Pro 225	9.2	★★★★/8.2
Umax Computer		
▶ SuperMac C500/160	5.2	★★★/5.9
SuperMac C600/180	5.2	★★★/6.2
SuperMac C600/200	5.8	★★★/6.2
SuperMac C600/240	6.3	★★★/6.5
SuperMac J700/180	7.3	★★★/6.9
SuperMac S900/200	8.3	★★★★/7.8
SuperMac S900/225	8.8	★★★★/8.0

Multiprocessor Performance Star Rating*

Apple Power Macintosh 9500/180MP	1.8	★★★★/7.5
DayStar Genesis MP 360+	1.8	★★★★/7.2
DayStar Genesis MP 720+	2.6	★★★★/7.4

*Based on features, implementation, innovation, performance, reliability, ease of use, and value. (See Star Ratings section for full explanation.) **Had less than 32MB of RAM, so some tests were conducted with virtual memory, which slows performance. ***Available only to educational institutions.

Behind Our Tests

For details on our methodology, see *Mac Superguide*, January 1997.—Macworld Lab testing supervised by Mark Hurlow

EDITORS' CHOICE

★★★★/7.8 **SuperMac S900/200** With great performance at a good price, plus a simple-to-upgrade case design and plenty of expansion capability, this system is well suited to being a departmental

intranet or moderate-demand Web server. Umax Computer (510/226-6886): \$3795, 32MB RAM, 512K cache, 8MB VRAM (8MB maximum), 2.1GB hard drive, 8x CD, 4 free drive bays, 6 PCI slots. Dec 96, p. 120 **m**

LACIE
LIMITED

Now there's a single



La Cie **d2** Hard Drives

Tops for high performance and reliability in 1.2GB to 9.0GB capacities.



La Cie **d2** Jaz Drives

Versatile 1GB file transfers make this the core of any complete storage solution.



La Cie **d2** DAT Drives

Value leader for backup and archiving.



La Cie **d2** 4X/4X CD-Recorder

The choice of designers and pre-press professionals for inexpensive distribution.



**Rugged.
Reliable.**
La Cie **d2 Drives**
stack up as
your most
versatile
high-performance storage solution.

La Cie **d2** Drives.

For over 10 years, La Cie has provided reliable storage solutions for professional and home computer users. La Cie has earned more industry awards and introduced more design innovations than any other storage provider. More than 750,000 users put our products to the test on their desktops everyday.

The tradition continues as our exciting new **d2 Drives** join our line up of Apple and Joule Portable drives.

Graphic, pre-press and multi-media professionals are turning to our **d2 Drive's** when they need a truly outstanding drive. Whether they want hard drive speed, Jaz drive portability, DAT back-up or CD-Recording capabilities, **La Cie d2 Drives** deliver rugged versatility.

With **La Cie d2 Drives** professional or home users alike can benefit from the industry's most reliable mechanisms, tough metal casings, switchable active termination and our award winning Silverlining™ driver software. Every **d2 Drive** is shipped ready for immediate "plug and play" operation as a stand-alone drive or in a space saving stack.



All La Cie drives include acclaimed Silverlining Disk management software plus four other vital performance enhancements, a \$99 value... **FREE!**

source for superior storage and color imaging products.

LACIE
LIMITED



electron 21

Full 21" color with
1600x1200dpi &
.28mm aperture
grill pitch.

Apple External... Joule Portable

Only La Cie provides the exclusive Apple

Exclusive Storage Choices From La Cie

Available only through selected resellers, the popular Apple Drive delivers choices up to 4.0GB of storage at fast 10MB/sec transfer rates. Classic Apple styling and concealed front-mounted SCSI address access have made this one of our most popular drives.

Joule portable drives provide up to 4.3GB of fast storage in a portable drive that connects to your system through a dock. When disconnected it is free to roam with you for security, file transfer or back up purposes. It even can even become part of a Joule's innovative stack concept.

Since 1987 we've introduced technology breakthroughs that make your computing tasks easier and more powerful. Now, with our expanded line of storage and color imaging tools, we've made it easier than ever to meet your individual needs with proven technology and La Cie reliability. That's a great solution no matter how you stack it up.

External drive and the unique Joule portable hard drive with dock.



Turbo 128

Real-time 128-bit
accelerator card pro-
vides max resolution
of 1920x1080dpi and
16.7 million colors.



Colortron

Advanced color
calibration from
scanner to monitor
to print.



Silverscanner IV

Provides accurate
36-bit, 4800dpi profes-
sional image capture.
Now includes ScanPrep.

La Cie Limited • tel 503 520-9000 • fax 503 520-5508 • web <http://www.lacie.com>

* La Cie Storage Utilities FREE with the purchase of a La Cie Drive. Joule, Joule Portable, d2, Silverlining, La Cie and the La Cie logo are trademarks of La Cie, Ltd. All other trademarks are the property of their respective companies. All specifications, terms, warranties, descriptions, products and services herein are subject to change without notice or without recourse. © Copyright 1997 La Cie, Ltd. All rights reserved.

Circle 52 on reader service card



New Team From left to right: Power Mac 9600, 7300, and 8600.

MORE MAC FOR YOUR MONEY

Apple's new
systems
respond to the
competition
with fresh
design and
better value

Apple Computer is finally starting to listen to its customers. That's not a claim *Macworld* makes often, and it certainly isn't one we make casually, but in at least one area—its new Power Macintosh line—Apple gets high marks for offering users more of what they've been clamoring for. While Apple probably could have gone further in adjusting its price point, users will see a better-than-ever price/performance ratio across the line, with a new low-end PowerPC 603e-based Power Mac, the 4400, anchoring this overall price/performance boost. And at the high end, Apple has made its expandable machines, well, truly expandable. As important as industrial design is, this isn't just design for design's sake: the new Power Mac 8600 and 9600 (which replace the 8500 and 9500, respectively) offer revamped design that is both sleek and useful.

Apple (408/996-1010, <http://www.apple.com>) is also beginning to learn when more features are better and when less is more: with a few exceptions, the new Power Macs standardize on more of the features that users have come to expect: Apple has bumped the entire line, including its general-use business sys-

tems, to 200MHz, and all the systems now ship with keyboards. Plus, the new Macs shed some of the little-used features that cluttered—and raised the costs of—their predecessors, along with the raised costs that resulted.

Clones Spur Apple's Changes Apple's listening to customers also means the Mac-clone competition is coming in loud and clear. In the last year, Apple has gone through several rounds of speed increases trying to keep pace with competitors who keep raising the speed bar by offering faster CPUs.

Of course, CPU speed alone doesn't make a system fast; for example, when *Macworld* evaluated the 150MHz Power Mac 8500/150 against Power Computing's 166MHz PowerTower 166, the Power Mac actually came in ahead because of Apple's faster disk drive (see "The New Speed Champs," July 1996). Still, in the months since then, Power Computing and others came out with even faster systems that surpassed Apple's 8500 and 9500, while Apple's line remained static.

Apple should be the innovation leader in the Mac systems market since it really controls the technology advances,

by Tova Fliegel



but for the past year, Power Mac revisions haven't broken much new ground, being essentially speed increases. At the same time, clone makers have been circumventing technical limits by offering additional value, like improved video circuitry and more slots in general-business systems, in addition to beating Apple in price and performance.

Apple is still behind the speed curve, but if it's possible to offer a feature set and a design that are simultaneously sensible and sexy, Apple does it in this latest round of Power Macs, set to ship February 17 following the Macworld Expo Tokyo show. *Macworld* evaluated prototypes of these units.

New Power Mac Commitment

These new Power Macs also strongly suggest revised thinking on Apple's part when it comes to product mix. For two years now, Apple has been surprised by

increased Power Mac sales, and even more surprised by the popularity of multiprocessing capability within the 9500 line. It's been unable to meet demand for the high-end machines, adding to the company's financial shortfalls.

But the increased vitality with which Apple is infusing the Power Mac line may mean that the company has finally figured out these Macs could become the bread and butter of its sales force.

New Heights at the Low End

In many ways, the star of the new lineup is the Power Mac 4400, which brings 200MHz 603e performance to the desktop at a solid price, although it is not a runaway value leader.

Wealth of Features For \$1749, you get 16MB of RAM, expandable to 160MB; a 1.2GB hard drive; an 8X CD-ROM drive; two PCI expansion slots (one

short 7-inch and one standard 12-inch); 2MB of video RAM, expandable to 4MB; a 256K cache card; and an Ethernet card in the Comm slot.

Power Computing's PowerBase 200, with one more PCI slot and an upgradable CPU, rivals the 4400 in terms of value at \$1795 (\$1895 for a minitower enclosure, which offers more expansion), but for the 4400's price you get Apple's usually top-notch quality control.

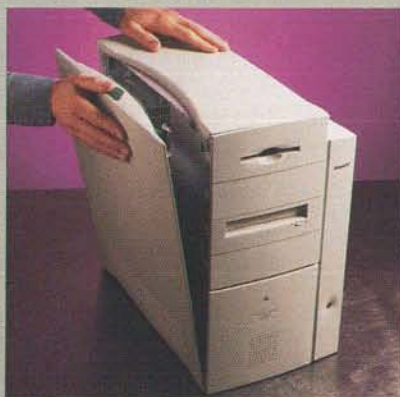
Although the 4400 trailed slightly behind other 603e-based systems like the Performa 6400 in FPU- and CPU-intensive tasks (see the benchmark, "Apple Moves Up the Performance Line") and its CPU is not upgradable, the 4400 offers more than enough power for most users, at the right price. Apple will roll out a version of the 4400 within its Performa line later this year.

Room for Improvement The 4400 is

THE NEW MACS' TRUE EXPANDABILITY NO MORE SCARRED FINGERS IN INSTALLING CARDS AND RAM

Those of you who cussed and fussed while expanding older Power Mac 8500 and 9500 systems will appreciate the new design of the Power Macintosh 8600 and 9600, which makes adding memory and swapping PCI cards so much easier. Here's a step-by-step look at improved expansion.

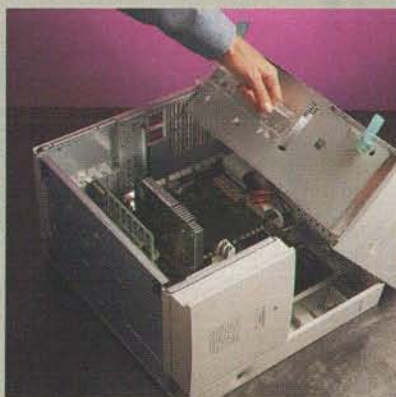
STEP 1



Flip off the side panel, which can be locked with a padlock for security, by simply depressing the handle. The panel comes right off.

In older systems, you had to unscrew the back panel to slide off the case, remove the ribbon cables connected to the drive bays, and remove all PCI cards. Oh, and that was just Step 1.

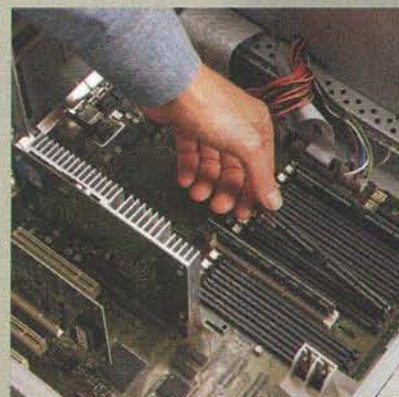
STEP 2



With the system open, you lay the 8600 or 9600 side down and depress two levers on a new hinged part of the case containing the floppy and CD-ROM drive bays. Simply swing this part of the unit out of the way.

In the older machines, once you had detached all the cables and removed PCI cards, you would have then unscrewed the panel that held the motherboard in the case. Even *Macworld* Lab, which has taken apart more Macs than we like to think about, lost capacitors doing this.

STEP 3



You have achieved access! Add in as much memory and as many cards as your system can handle—all without needing the dexterity of a surgeon.

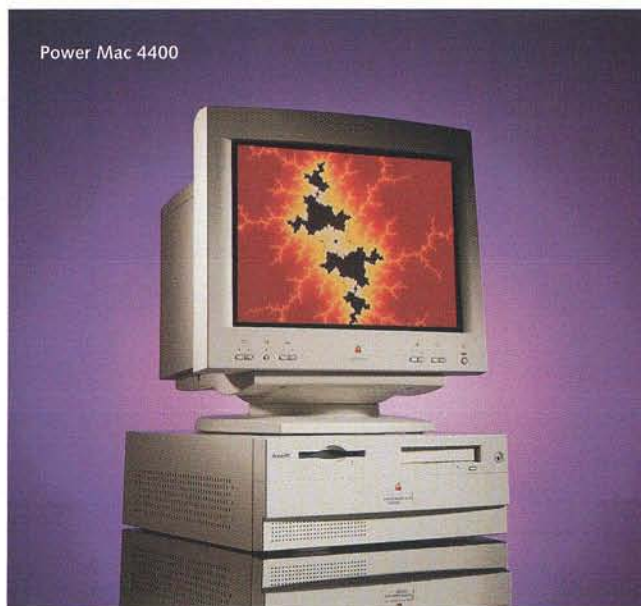
not without room for improvement, however. It comes with a 15-pin Mac port for your monitor, so you can't use standard VGA connectors. It really is time for Apple to use standard VGA connectors across its lines, as many of the Mac-clone makers are doing. Users deserve a wider choice in monitors.

The 4400 also uses the 3.3-volt DIMMs found in Motorola Computer Group's StarMax systems, instead of the 5V DIMMs used in other Apple Macs (see "A New Memory Standard Debuts," *News*, January 1997). That means you won't be able to migrate the 5V DIMMs from your older systems. Apple says the rest of the industry is moving to 3.3V DIMMs, the type of memory that Apple intends to use throughout future generations of its lines. However, Motorola Computer Group chief Dennis Schneider has told *Macworld* that he sees the 3.3V DIMMs as an interim stop on the way to the eventual implementation of faster synchronous dynamic RAM (SDRAM) in systems based on the Common Hardware Reference Platform (CHRP). (*Macworld* has also recommended the use of SDRAM in future systems; see "The Mac Reborn," September 1996.)

The U.S. version of the 4400 ships with an 8× CD-ROM, while the Japanese version comes with the 12× drive that Apple has standardized on throughout the remainder of its Power Mac line—both here and in Japan. Although there isn't much of a perceptible difference between 8× and 12× CD-ROM drives, it would have made sense to ship the 4400 with a 12× CD-ROM drive.

We were also annoyed to find that Apple hasn't moved away from using a short PCI card—it's the only Mac vendor that does. This is another area in which we'd like to call for greater conformity with industry standards.

Finally, the 4400 ships with System 7.5.3 and not 7.5.5 (which won't run on a 4400) or a 4400-capable revision of Mac OS 7.6 (formerly known as System 7.6). Apple includes a coupon with the shipping systems so buyers can upgrade to the 7.6 revision, which should be available in April for \$24. (The Mac OS 7.6 version that shipped in late January won't



Power Mac 4400

**At only \$1749,
this 603e-based
Power Mac is
a strong value**

run on a 4400. This is an unfortunate side effect of Apple's new three-year OS-release strategy.)

Ethernet Compatibility The 4400 is the only current model in the new Power Mac line to rely on the Comm slot or a PCI card to provide Ethernet capability. Apple says that because the 4400 is based on the Tanzania motherboard it doesn't have the Ethernet-compatibility problem that occurred with Macs based on the Alchemy motherboard (commonly used in the Performa series).

Alchemy-based Macs, which do not have built-in Ethernet but rely instead on PCI cards, cannot use classic networking protocols. These include the MacIPX, DECnet, LAT, and MacOSI protocols that let users take advantage of higher-level functions such as Token Ring, Fast Ethernet (also known as 100BaseT), and FDDI. However, users can run AppleTalk and Ethernet regardless of whether Ethernet is implemented on the motherboard, a PCI card, or the Comm slot.

Apple says vendors of the classic networking protocols—Novell and Digital Equipment—need to rewrite them to be Open Transport-capable. In the meantime, users of Alchemy-based Macs can download an Apple fix from Macworld Online's Software Collection (<http://www.macworld.com/cgi-bin/software.pl/AppleSoftware/Software.888.html>).

Apple has tested an Apple-branded Ethernet card—the only card available, according to the company—in the 4400's Comm slot and experienced no problems running Fast Ethernet or Token Ring. However, Macworld Lab was

not provided with a card for testing to verify this claim. (The Apple spokesman was not sure about FDDI capability; however, since FDDI is used as a network's backbone, this is less of a concern with the consumer-oriented 4400.) Apple also provided a list of six PCI networking cards that work with the 4400, a few of which provide Fast Ethernet or Token Ring. The company says these cards—from Apple, Asanté Technologies (408/435-8388, <http://www.asante.com>), Dayna Communications (801/269-7200, <http://www.dayna.com>), and Farallon Communications (510/814-5100, <http://www.farallon.com>)—passed rigorous tests, but again Macworld Lab was unable to do any hands-on testing.

The Upper Middle Class

Superseding both the Power Mac 7200/120 and the 7600/132 is the Power Mac 7300 series, a midrange 604e-based Mac aimed at the business and education markets. Because it is based on the same motherboard as the 7600 (which will continue to be sold only in Japan), the 7300's design suggests that Apple is beginning to standardize on motherboard implementations and will reduce the number of system designs, as promised by Gil Amelio when he first became Apple's CEO more than a year ago.

Standardized motherboard implementations should mean lower prices for customers because Apple will have reduced inventory costs and will be able to use identical parts in more models, buying them at volume discounts. Fewer

parts will be wasted, and inventory-maintenance costs should go down.

Sensible Features In the United States, the 7300 ships with 180MHz and 200MHz CPUs—a real speed increase for business buyers. It is likely to come in a third configuration, 166MHz, for Asian markets. Even though it's just a tad pricier than the 7600/132, which sold for \$2299, the 7300 (\$2799 for the 200MHz model and \$2399 for the 180MHz model) provides performance unheard of in a midrange, business-oriented Apple Mac.

The 7300 is essentially a merger of the old 7200 and 7600. The 7200 had no video-input circuitry and no upgradable CPU, while the 7600 had both. The 7300 drops the video-input circuitry but keeps the upgradable CPU—evidence that Apple is adapting its standard feature set to match user demand more closely. The 7300 comes with a 12× CD-ROM drive, and unlike its lower-end cousin, the 4400, uses the standard 5V DIMMs, as does the rest of the new Power Mac line.

The 7300 ships with System 7.5.5, as do the 8600 and 9600. Users of 7.5.5 can upgrade to Mac OS 7.6 for \$69.

Apple Catches Up in Speed In terms of performance, the 7300 ranked not far below the now-discontinued 200MHz PowerTower from Power Computing. This is a step up for Apple, whose earlier systems fell further below the competition in our speed tests. And the Power Mac 7300 outshone its older, far more

THE RIGHT OPTIONS: APPLE'S NEW LINEUP

Company	Product	Star Rating ^B	Price ^C	CPU Type			SPEED-RELATED FEATURES
				604e	604	603e	
Apple Computer 408/996-1010	Power Macintosh 9600/200MP	not shipping	\$4799	2			200MHz
	Power Macintosh 9600/200	not shipping	\$3799	●			200MHz
	Power Macintosh 8600/200	not shipping	\$3299	●			200MHz
	Power Macintosh 7300/200	not shipping	\$2799	●			200MHz
	Power Macintosh 7300/180	not shipping	\$2399	●			180MHz
	Power Macintosh 5260/120	★★★/5.5	\$1499 ^E			●	120MHz
	Power Macintosh 5400/180	★★★★/7.1	\$1999 ^E			●	180MHz
	Power Macintosh 6400/200	★★★★/6.4	\$1899 ^E			●	200MHz
	Power Macintosh 4400/200	not shipping	\$1749			●	200MHz
	Performa 6400/200	★★★★/7.1	\$2199			●	200MHz
	Performa 6400/180	★★★/6.6	\$1899			●	180MHz
	Performa 6360	★★★/5.6	\$1499			●	160MHz

● = yes. ^A Unless otherwise noted, all include the following ports: one ADB, two serial, one external SCSI-1, two 16-bit stereo I/O, and include keyboards. ^B All systems without on-board video come with a PCI video card installed. ^E Available only to educational

expensive performance predecessors (the 8500/180 and 9500/200), which sold for \$3699 and \$4199, respectively. The 7300 is a solid entry-level choice for business users.

More Value at the High End

Apple categorizes the 8600 and 9600 in the same niches it defined for the 8500 and 9500. Apple says the 8600 is intended for media authoring, while the 9600 is tailored to publishing professionals.

The 8600's Media Value In keeping with its goal of hitting the media-authoring market, the 8600 includes an internal Zip drive as standard, a feature that none of the clone makers is offering yet (although Power Computing offers these drives as an option across most of its line) and a first for the Power Mac line. Like its 8500 predecessor, the 8600 includes video-input and -output circuitry and three PCI slots.

NEW SYSTEMS EASE OUT THE OLD FAST PACE OF TECHNOLOGY MEANS EVER-CHANGING CHOICES

The fast pace of new PowerPC CPUs from IBM and Motorola has meant a hyperkinetic pace for new Macintosh systems. But even as Mac makers announce faster systems, they're dropping models to keep their product lines manageable.

Apple To make way for the new Power Mac 7300, 8600, and 9600 systems, Apple (408/996-1010, <http://www.apple.com>) will drop the 7200, 7600, 8500, and 9500 lines, making way for the new machines with fire-sale pricing. The 7200/120 now costs just \$1349, from \$1599; the 7600/132 is \$1799,



from \$2299; the 8500/150 is \$2199, from \$2999; the 8500/180 is \$2699, from \$3699; the 9500/180MP is \$3999, from

\$5199; the 9500/200 is \$3199, from \$4199.

And as it introduces the high-end PowerBook 3400 (see

Out with the Old New models like Umax Computer's SuperMac \$900/240 (left) and Power Computing's PowerTower Pro 250MP have forced Mac makers to get rid of several older models.

"PowerBook with a Punch," in this issue), the company has axed the PowerBook Duo 2300c. This marks the end of Apple's sub-notebook line. To clear remaining inventory, the 2300c has been available at fire-sale prices (\$1899 compared with the usual \$4699 for the version with a 1.1GB drive and 20MB of RAM) from several mail-order catalogs.

		MEMORY			VIDEO DISPLAY			STORAGE				EXPANSION ^A					COMMUNICATIONS		
Bus Cache Speed		RAM		RAM Slots	VRAM (standard/ maximum)	On-Board Circuitry ^D	Free Bays	Hard Drive		CD-ROM Drive			Case	PCI Slots	Internal Bus			Modem	Ethernet
		32MB	16MB					1.0GB- 1.9GB	2.0GB- 4.0GB	12x	8x	Other			SCSI-2	SCSI-1	EIDE		
512K	50MHz	●		12	8MB/8MB		2		4.0GB	●			tower	6	●				●
512K	50MHz	●		12	8MB/8MB		2		4.0GB	●			tower	6	●				●
256K	50MHz	●		8	2MB/4MB	●	1		2.0GB	●			tower	3	●				●
256K	50MHz	●		8	2MB/4MB	●	1		2.0GB	●			desktop	3	●				●
256K	45MHz		●	8	2MB/4MB	●	1		2.0GB	●			desktop	3	●				●
none	40MHz		●	2	1MB/1MB	●	0	1.2GB				4x	all-in-one	0			●		
none	40MHz		●	2	1MB/1MB	●	0	1.6GB			●		all-in-one	1			●		●
256K	40MHz		●	4	1MB/1MB	●	1		2.4GB		●		tower	2		● ^F			●
256K	40MHz		●	3 ^G	2MB/4MB	● ^H	0	1.2GB			●		desktop	2			●		●
256K	40MHz		●	4	1MB/1MB	●	1	1.2GB			●		tower	2 ^I		● ^F		●	
256K	40MHz		●	4	1MB/1MB	●	1	1.6GB			●		tower	2 ^I		● ^F		●	
256K	40MHz		●	2	1MB/1MB	●	0	1.2GB			●		desktop	1			●	●	

and one Mac video port. ^B Based on features, implementation, innovation, performance, reliability, ease of use, and value. (See Star Ratings section for full explanation.) ^C All prices are Apple's estimates institutions. ^F Allows only one drive to be connected. ^G Uses 3.3-volt DIMMs, which are not compatible with other Macs' 5V DIMM slots. ^H Has only VGA video connector. ^I Short (7-inch) cards only.

With a 200MHz 604e CPU, a key-board, a new design, an internal Zip, and a price of \$3299, the 8600 is a much better buy than the \$3699, 8500/180. (See the sidebar "New Systems Ease Out the Old" for a list of Apple's discount pricing on soon-to-be discontinued models.)

It's also worth noting that while the 7300/200 outperformed the 8600/200 in most operations, the 8600 includes the niceties that a media-authoring whiz will

want, and the 8600/200 still came in ahead of the 9500/200 in our speed tests.

The 9600's Publishing Persona Lacking the built-in video circuitry of the 8600, the 9600/200 and 9600/200MP come with the Integrated Micro Solutions TwinTurbo 128, a video card that other Mac makers (including Umax Computer and Power Computing) offer in their high-end systems. Apple says the new cards should improve 2-D and 3-D

graphics performance over the old card, but Macworld Lab was unable to find a measurable difference in its testing. (These tests did not include 3-D video display, however.)

The 9600/200 outperformed all Mac models running at the same speed, ranking second only to the 225MHz PowerTower Pro from Power Computing, and again coming in at a price below the most recent prices for older models.

Power Computing With perhaps more models coming and going than anyone else, Power Computing (512/388-6868, <http://www.powercc.com>) has set a pace that can be dizzying for buyers to follow.

The company has dropped the PowerTower series, just about six weeks after it began shipping PowerTower versions with 180MHz and 200MHz 604e CPUs. Replacing the PowerTower series are the tower versions of the PowerCenter series, formerly a desktop-case-only series. Now that Power Computing has a 180MHz 604-based (not the

faster 604e) version of the PowerCenter in a tower case, the PowerTower no longer made sense as a separate line. Like the PowerTower, the PowerCenter has three PCI slots.

Power Computing continues to offer its six-slot PowerTower Pro series with 604e CPUs running at speeds of 200MHz and 225MHz, plus it expects to ship a new dual-processor 250MHz version of the PowerTower Pro around the time you read this.

Power Computing has also canceled plans to ship the PowerCenter 166, leaving two speeds in the 604-based PowerCenter

lineup: 150MHz and 180MHz.

Umax Computer Changing its product line before some models even shipped, Umax Computer (510/226-6886, <http://www.supermac.com>) has also cut some models. Gone is the SuperMac S900/180DP, a dual-processor tower system using 180MHz 604e's. That product had shipped in limited quantity for just a few weeks. A new 200MHz dual-processor tower replaces it.

The PowerPC 603e-based SuperMac C500 entry-level desktop system, which shipped just as this issue went to press

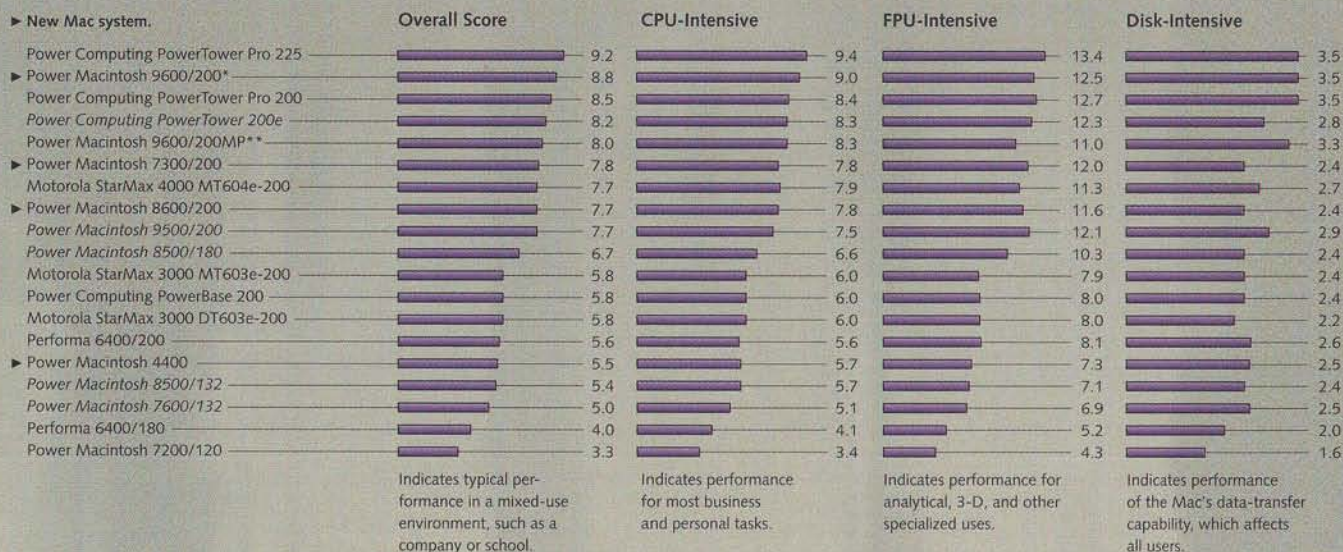
(see *Mac Superguide*, in this issue), has had a speed increase, from 140MHz to 160MHz, before the product ever reached a customer.

Also gone is the 150MHz S900/150 tower, which Umax had shipped for about five months. With the introduction of a 240MHz 604e-based SuperMac S900 system (expected to ship around the time you read this), the 150MHz model no longer made sense. Umax continues to offer 200MHz and 225MHz S900 models. A 150MHz version of its J700 desktop also exists.—GALEN GRUMAN

Apple Moves Up the Performance Line

The new Power Mac 9600/200, with interleaved memory, edges out the PowerTower Pro 200 despite having the same CPU speed and disk performance. The 8600, with slower disk speed (which affects overall performance), falls behind the PowerTower Pro 200e, but both the 9600 and 8600 significantly outperform the models they replace, the 9500 and 8500. The new Power Mac 7300 also does extremely well against similar-class machines. The Power Mac 4400 desktop system is equivalent in overall speed to the Performa 6400/200 tower system, which it will compete with. Note that Macworld Lab tested late prototypes of the new Power Macs and that performance may vary slightly on shipping systems.

Longer bars are better. Results are times as fast as a Centris 650 (Centris 650 = 1.0). Products are listed from fastest to slowest overall. Discontinued Macs are in italics and presented for comparison.



* At press time, Apple was deciding whether to ship a 233MHz system, but such a system was not available for testing. ** Multiprocessor Macs run a bit slower on common operations, as shown here, but show significant speedup when running programs written to take advantage of multiprocessing.

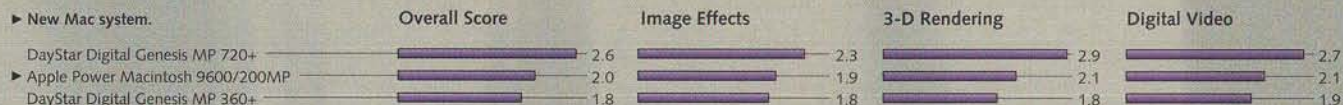
Behind Our Tests

For details on our tests, see *Mac Superguide*, January 1997.—Macworld Lab testing supervised by Mark Hurlow

Apple Leads in Dual-Processing Systems

Although DayStar Digital continues to offer the fastest multiprocessing system, Apple takes the lead in affordable MP systems with its new Power Mac 9500/200MP, which outperforms the Genesis MP 360+ by 11 percent but costs just two-thirds the 360+'s price.

Longer bars are better. Results are times as fast as a Power Mac 9500/150 (9500/150 = 1.0). Products are listed from fastest to slowest overall.



Behind Our Tests

Macworld Lab evaluates multiprocessing performance by using a series of 40 filters and imaging effects in Adobe Photoshop 3.05, a 3-D rendering in Strata Studio Pro Blitz 1.75, and assembling and

compressing a QuickTime movie in Adobe After Effects 3.0. All tests use tasks that have been optimized for multiprocessing.—Macworld Lab testing supervised by Mark Hurlow

This is a significant gain for Apple.

At press time, Apple was uncertain whether it would ship the 9600 with a 200MHz or 233MHz CPU. A 233MHz unit was not available for testing.

Joyful Expansion The best thing about both the 8600 and 9600 is an improved tower design that makes adding memory and swapping PCI cards a near-joy. We're sure those of you who labored with trying to expand older systems, wishing you had hands the size of a six-year-old's (while hoping your six-year-old wasn't around to hear

you curse), will ooh and ahh over this new design. We did. (For a step-by-step look at this innovation, see the sidebar "The New Macs' True Expandability.")

The 7300 has the same flip-up chassis for eased upgrading that the 7500 and 7600 had.

The Last Word

Macworld has criticized Apple's lack of innovation in the past, and now we applaud its movement forward. While still trailing in the speed race, Apple has nar-

rowed the performance gap considerably. Plus, the company is getting smarter about which features it puts in and which it leaves out. And now that Mac makers are looking to the PC world to set price points, Apple is also becoming more price-competitive than ever before. It's all about giving users what they want, and with a few exceptions, Apple is starting to do just that with its new Power Mac lineup. **m**

Senior associate editor TOVA FLIEGEL covers systems technologies for *Macworld*.

Blast Your Web Page Into The Next Dimension!

SPECULAR 3D WEB WORKSHOP™

Before Specular 3D Web Workshop

After Specular 3D Web Workshop

ONLY

\$149*

Specular 3D Web Workshop

A complete set of Web design graphics tools, plus hundreds of customizable WebHands™!

NEW

COOL

Specular

Home

Links

Forward

SPECULAR

HOME

LINKS

FORWARD

GO!

HOT



Specular 3D Web Workshop is the complete solution for creating high-impact Web pages. Specular 3D Web Workshop makes it easy to integrate sophisticated graphics, such as 3D animations, into your Web pages with drag-and-drop simplicity. Whether you are a beginning Web enthusiast or a seasoned Web Master, 3D Web Workshop has everything you need to quickly create a stunning page that will draw in Web surfers and keep them coming back!

Specular
The 3D Graphics Company

Innovative Specular WebHands™ make creating custom Web pages fast and easy. Drag-and-drop professionally designed Web graphics into Adobe PageMill™ for instant page creation, or edit text, lighting, color, perspective and more. Animated WebHands work out of the box with any browser, or you can tune them for QuickTime or Shockwave™ plug-ins. So blast your Web page into the next dimension with Specular 3D Web Workshop!

For more information, call Specular at 1-888-334-7386
Check out our Web site for a demo: www.specular.com

Specular 3D Web Workshop, Specular WebHands and the Specular logo are trademarks of Specular International, Ltd. The Netscape Navigator interface and the Netscape logo are trademarks of Netscape Communications Corp. All other trademarks are copyright by their respective owners.

Circle 41 on reader service card

30 Day Money-Back Guarantee!

*149 for 3D Web Workshop without PageMill. \$249 with PageMill 2.0



New!



'92 & '95 Eddy Award
Macworld World Class



MacUser 4-Mice
MacWEEK 4-Diamonds



1994 Eddy Award
NewMedia Awesome



MacWEEK 4-Diamonds
MacUser UK 4-Mice



Replicas





Faster The PowerBook 3400c is built for speed.

POWERBOOK WITH A PUNCH

APPLE UPS THE ANTE WITH A **240MHZ** PORTABLE



Until now, PowerBook buyers who needed—or merely wanted—a high-performance computer have been out of luck. Apple Computer's (408/996-1010, <http://www.apple.com>) new

PowerBook 3400c changes that.

People who do serious graphics editing, frequently sort large databases, or crunch a lot of numbers finally have a PowerBook that can do these jobs handily. The 3400c targets engineers, multimedia developers, and others who are willing to pay the price for high performance—\$1800 to \$2800 more than comparably equipped PowerBook 1400c models.

For the money, you get a 180MHz, 200MHz, or 240MHz 603e CPU with a 256K cache; a high-performance internal PCI-based slot; a direct memory addressing interface for all ports, which offers greater speed; and up to 144MB of RAM. You also get four speakers, a stereo high-frequency pair plus a low-frequency pair; full-screen display of TV images; a lithium-ion (LiIon) battery; a 1.3GB to 3GB hard drive; an industry-standard IrDA infrared interface; and a provision for an external dock with full-size PCI slots—a first for a non-Duo PowerBook.

Apple will offer four versions of the 3400. All come with a floppy drive and 16MB of RAM, and all but the stripped-down model have an internal 10BaseT Ethernet/33.6-Kbps modem PCI card. The high-end \$6500 model, with a 240MHz CPU, 3GB hard drive, and 12× CD-ROM drive, will ship in March, according to Apple. The other three models should be available in February: a 200MHz version for \$5500 with a 2GB hard drive and a 6× CD-ROM drive; a 180MHz version for \$5000 with a 1.3GB hard drive and a 6× CD-ROM drive; and finally, the stripped-down 180MHz model for \$4500 with a 1.3GB hard drive but neither a CD-ROM nor an Ethernet/modem card.

The 200MHz 3400c performs similarly to the Power Macintosh 9500/132 (a 132MHz 604 CPU is equivalent to a

200MHz 603e). Macworld Lab tested a prototype 200MHz unit and found that the 3400c also outperforms a PC portable; see the benchmark, "Apple Rivals the PC with a Truly Faster PowerBook."

Because the CPU is soldered on the motherboard, the CPU cannot be upgraded—a major drawback. Consequently, you'll have to replace the 3400c to change speed. The 240MHz version is the fastest for this PowerBook design, because the 603e CPU can run up to six times the 40MHz bus speed.

The 3400 uses the power-saving EDO (extended data out) memory common in PCs; the motherboard has 16MB and you can add a single large memory card—with up to 128MB capacity, for a total of 144MB. Apple ships all 3400's without a memory card.

The 3400c is the first PowerBook to have a fan. The fan rarely turns on in normal usage; when it does, the air flows out under the front of the computer.

PCI Makes a Mixed Debut

The 3400c has space internally for two cards—the memory board and a mini PCI card (see the photo "Unique to the 3400c").

Preinstalled Ethernet and Modem The mini PCI card is designed to be installed by Apple or a dealer. In fact, the three higher-end 3400c configurations ship with the mini PCI slot already filled with a card from Asanté Technologies (408/435-8388, <http://www.asante.com>) that combines 10BaseT Ethernet with a 33.6-Kbps modem. A single connector jack works as a modem if you plug in a telephone cable, and as a network card if you plug in 10BaseT. A dongle allows simultaneous use.

The Cons While the internal mini PCI slot boasts the highest performance capability of any notebook's, its implementa-

B Y C A R Y L U

Although the 3400c sets new performance standards for a PowerBook, it doesn't change

Apple's overall PowerBook strategy, which represents the last vestige of the "old" Apple: Only Apple makes Mac laptops; no clone makers need apply.

For a while, this strategy worked; the early PowerBooks did phenomenally well, partly because of good design, partly because of pent-up demand. Apple led the industry in laptop market share, and the PowerBooks were the most profitable models in Apple's product line.

The Downfall

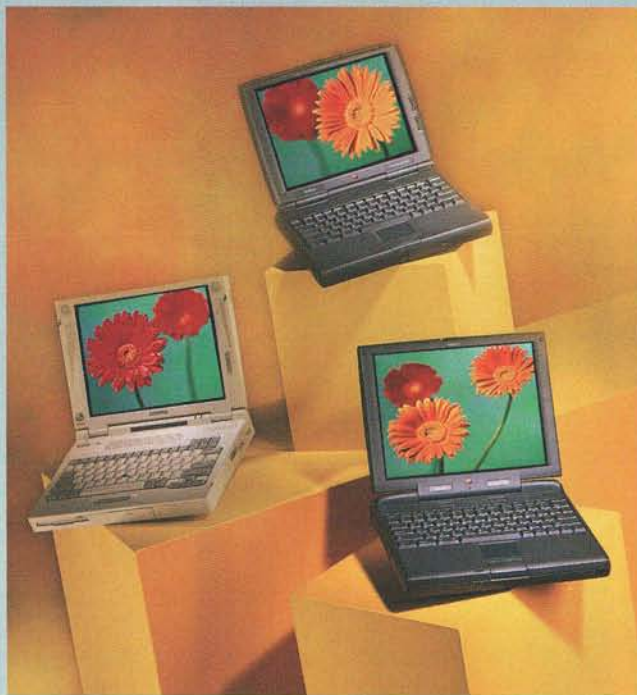
But over time, the strategy weakened; Apple produced only a few basic PowerBook types, which could not meet every requirement. Laptops are, after all, very personal computers; individual preferences and needs vary more than for desktop computers.

Apple's strategy led to disaster with the PowerBook 5300 in fall 1995, first in the famous battery fires and then in flawed motherboards and case hinges. For long periods in 1996 there were no new PowerBooks available for purchase.

The problems with the 5300, while serious, weren't all that unusual. Major companies such as Compaq, IBM, and NEC have also had serious problems with laptops, including flawed electronics, battery fires, and recalls. In a backhanded tribute to Apple's visibility, however, only the PowerBook's problems made the business news pages around the country. The failure of the 5300 cut Apple's laptop market share by half and removed more than \$100 million from Apple's bottom line.

If you are dissatisfied with an IBM laptop, you might buy a Toshiba model instead and perhaps return to IBM in the future. With Apple's take-it-or-leave-it PowerBook policy, leaving it

THE STATE OF THE POWERBOOK



Wake-Up Call Apple needs a new laptop strategy if it wants people to choose a Mac portable, like the PowerBook 1400c (top) and the 3400c (right), over a Windows alternative like the Compaq LTE 5400 (left).

means a Windows computer, and the buyer may never come back to the Macintosh.

If PowerBook clones had been available during the 5300 episode, customers could have remained Macintosh users and Apple would have at least gained licensing revenue rather than losing everything.

There are, of course, many more Windows laptops than PowerBooks to choose from. Those choices are narrower than they first appear, however, because many Windows laptop computers are poorly executed, me-too designs.

Yet the best Windows laptops collectively offer a wide range of credible choices—you can weigh battery life against performance, screen size against portability. And you can choose from several pointing devices and many keyboard layouts.

PowerBooks still hold their own in key areas. Apple has kept the number of battery types to a minimum, so third-party batteries are readily available for older models. Apple's consistent architectural design means that PowerBooks are free of the compatibility problems that have always plagued Windows hardware. And the traditional Mac advantages, such as multiple-monitor support (until the 3400!) and the ability to start from any storage device, remain powerful.

No Subnotebooks

For now, the PowerBook 1400 and 3400 series target the main laptop market, yet also leave an obvious gap. Apple has no subnotebooks (under five pounds), now that the Duo 2300c has been discontinued. The Duo itself cannot be upgraded further; it's built on a 68030 bus and

has no provision for PC Cards.

While the subnotebook market is only a tenth of the overall laptop market, this market segment consists of active buyers, mostly experienced computer users who happily dispense with CD-ROM and floppy disk drives to save weight and bulk.

Last fall, Apple announced a joint project with IBM to develop a subnotebook for the Japanese market; Apple says it has not yet committed to selling an actual product. There is a whole class of subnotebooks available in Japan, such as the very small (6.25-by-4.5-by-1.25-inch) 1.3-pound IBM Palm Top PC 110, that are not sold elsewhere. These miniature laptops have very small keyboards that a touch typist cannot use (few Japanese can touch-type because of complications in dealing with their language). Power Computing tried to adapt the IBM Japanese subnotebook for the American Mac market but found the technology was not adaptable.

Apple says that its next subnotebook might be another joint-development project or simply might be turned over to another company to design and produce. Either way, a new subnotebook will not arrive until 1998, about the time when the 3400c's replacement arrives. That's a long time to go without a cornerstone in the crucial laptop field, particularly when Windows subnotebooks such as the IBM ThinkPad 560 and Sharp WideNote are available, offering attractive options and comparable pricing.

Let the Clones In

If Apple truly wants to promote the Macintosh platform, it has to allow laptop clones as well as desktop clones. Power Computing says it plans to introduce a laptop based on a desktop motherboard design later this year—provided that Apple gives permission. Apple should: its policy of no laptop clones has already been proven a failure.

tion has drawbacks. The slot will not accommodate desktop PCI cards, and the slot's design differs from a recent proposal for an industry-standard "small PCI card."

Also, Apple discourages card makers from developing miniature cards based on existing PCI designs by filling the slot in most 3400 models. Card companies worry this is yet another proprietary slot that will be used only on this specific PowerBook model. Those companies that built internal cards for the PowerBook 5300 lost a lot of money when sales of 5300's fell far short of Apple's predictions. Bottom line: I didn't find any company willing to make a card that takes advantage of this PCI slot.

Video Advances, a Display Setback

All 3400c's come with a 12.1-inch active matrix LCD that shows 800 by 600 pixels in thousands of colors, at 83 dpi. Because of the resolution, the screen is a bit scrunched compared with the typical 70 to 75 dpi for desktop monitors.

Adapt to VGA The video-out circuit uses a standard Chips & Technologies video controller popular in high-end Windows laptops. The video-out connector is a VGA type (high-density; 15 pins in 3 rows); Macintosh monitors need a plug adapter. Older fixed-sync Mac monitors will work. Windows video circuits don't support multiple monitors, so the 3400c is the first high-end Macintosh with a video port that supports only a single logical display.

With an external monitor connected, your choices are:

- built-in LCD only,
- external display only (built-in LCD screen dark) with 640 by 480 and 800 by 600 pixels in thousands of colors, 832 by 624 or 1024 by 768 pixels in 256 colors (the VGA modes come in a choice of refresh rates, up to 75 Hz), or
- mirror mode, called SimulScan in the control panel, with the LCD and external display showing the same image at 800 by 600 pixels in thousands of colors.

In mirror mode, the external display runs only at 800 by 600 pixels; you can't drive an older 640-by-480-pixel LCD projector unless you turn off the built-in screen. You must restart the computer when you connect an external monitor.

Zoom Video The 3400 has Zoom video input, also called Zoomed Port Video. Zoom video works through a modified PC Card interface, sending video directly to the video controller for immediate display with full-screen, full-motion video at 30 frames per second (fps).

The simplest Zoom cards—about \$300—produce images from an analog video input. A Zoom card with a TV tuner turns the 3400 into a full-screen LCD color television set; the card handles interlacing by doubling the lines in each field. You can also capture the video to disk or RAM, although at only 8 fps. MPEG Zoom video cards decode an MPEG video stream from a hard disk or CD-ROM for the screen. All Zoom video cards will need a driver for the 3400c.

Expansion Options

On the outside, the 3400c expansion bay looks like the expansion bay of the PowerBook 5300 and 190. It takes the same devices—Apple's floppy disk and CD-ROM drives, plus hard, magneto-optical, and Zip drives from VST Technologies (508/263-9700, <http://www.vsttech.com>). The obvious difference is a small flap that folds away to accept the CD-ROM drive, which is too wide to fit into a PowerBook 5300 or 190. To save power and reduce component size a bit, the portable CD-ROM drives are 6X instead of the 8X now common on desktop computers.

Sorting Out EIDE Interfaces All these drives connect to a secondary EIDE interface; the internal hard drive connects to the primary EIDE interface. While EIDE allows two devices per interface, one master and one secondary, Apple's current software supports a master drive but not a slave drive on each of the two EIDE interfaces. This approach optimizes performance and lets you turn off a drive to save battery power. Either an EIDE or an external SCSI drive can start up the computer.

You can swap drives without putting the computer to sleep,



although you should unmount the drive by putting the drive icon in the Trash or using ⌘-Y. If you don't unmount first, a screen message will ask you to reinsert the drive and unmount properly. Other expansion-bay devices developed for the 5300 and 190 (but not the 1400) will also work with the 3400.

DMA Benefits Internally, the expansion-bay connector is improved over the 5300's. Two pins convey direct memory addressing (DMA) signals from the expansion-bay device. DMA-enabled drives require less attention from the CPU and can perform up to twice as fast as non-DMA drives. VST's expansion-bay drives work as DMA drives on the 3400 and as non-DMA drives on the 5300 and 190. Older VST drives without DMA will work in a 3400, and can be upgraded to DMA by VST for about \$100.

Docking Plans The other change in the expansion-bay connector is a software switch that changes the connector from IDE

With Apple's limited offerings of PowerBooks and their not-inexpensive price tags, a used Power-

POWERBOOK SUPERGUIDE

FINDING THE RIGHT ONE FOR YOU

Book might be a better answer for your needs and budget. Apple has produced nearly 30 different PowerBook models since 1991; all remain practical computers, although the older models naturally have more limited uses today. This guide gathers specifications for all the PowerBooks and lists what *Macworld*

considers a fair price. Prices are for a common configuration with a battery in working condition and an AC power adapter.

Shopping Tips

Gauge the Wear and Tear Buying a used computer always has some risks, especially for a laptop,

which might get rough handling. If the PowerBook shows any sign of having been dropped or if any plugs are loose, you should pass it up. Keyboards with faulty keys, batteries with short lives, and problem hard and floppy drives can all be replaced, but the price should be reduced by the replacement cost.

Know the Parts Inventory Apple does not supply many service parts; a dead backlight for the screen often cannot be repaired except by replacing the entire screen, which is almost never cost-effective. Although I don't normally consider Apple Care a good buy, a PowerBook that is under or qualifies for

Comparison Shopping: What Each PowerBook Offers

Product	Fair Price (RAM/ drive capacity) ^A	CPU				Speed	RAM Standard/ Maximum	STORAGE Hard Drive	VIDEO DISPLAY				
		603e	68040	68030	68000				CD- ROM	SCSI Disk Mode	Screen Size (in inches)	640 by 400 pixels	640 by 480 pixels
PowerBook 100	\$300 (4MB/40MB)				●	16MHz	4MB/8MB	20MB-80MB	●		9.0	●	
PowerBook 140	\$235 (4MB/40MB)			●		16MHz	4MB/8MB	20MB-80MB			10.0	●	
PowerBook 145, 145B	\$275 (4MB/40MB)			●		25MHz	4MB/8MB	40MB-80MB			10.0	●	
PowerBook 170	\$475 (4MB/80MB)			●		25MHz	4MB/8MB	40MB-80MB			10.0	●	
PowerBook 150	\$300 (4MB/120MB)			●		33MHz	4MB/40MB	120MB-250MB			9.5		●
PowerBook 160	\$500 (4MB/120MB)			●		25MHz	4MB/14MB	40MB-120MB	●		10.0	●	
PowerBook 165	\$525 (4MB/120MB)			●		33MHz	4MB/14MB	40MB-120MB	●		10.0	●	
PowerBook 180	\$675 (4MB/120MB)			●		33MHz	4MB/14MB	80MB-120MB	●		10.0	●	
PowerBook 165c	\$375 (4MB/160MB)			●		33MHz	4MB/14MB	80MB-160MB	●		9.0	●	
PowerBook 180c	\$625 (4MB/160MB)			●		33MHz	4MB/14MB	80MB-160MB	●		8.4		●
PowerBook Duo 210	\$300 (4MB/80MB)			●		25MHz	4MB/32MB	80MB		w/dock	9.0	●	
PowerBook Duo 230	\$400 (4MB/120MB)			●		33MHz	4MB/32MB	80MB-120MB		w/dock	9.0	●	
PowerBook Duo 250	\$535 (4MB/200MB)			●		33MHz	4MB/32MB	200MB		w/dock	9.0	●	
PowerBook Duo 270c	\$580 (4MB/240MB)			●		33MHz	4MB/32MB	240MB		w/dock	8.4		●
PowerBook Duo 280	\$675 (4MB/240MB)		●			33MHz	4MB/40MB	240MB		w/dock	9.0	●	
PowerBook Duo 280c	\$875 (4MB/320MB)		●			33MHz	4MB/40MB	320MB		w/dock	8.4		●
PowerBook Duo 2300c	\$1500 (8MB/750MB)	●				100MHz	8MB/56MB	750MB-1.1GB		w/dock	9.5		●
PowerBook 520	\$750 (8MB/160MB)		●			25MHz	4MB/36MB	160MB	●		9.5		●
PowerBook 520c	\$950 (8MB/160MB)		●			25MHz	4MB/36MB	160MB	●		9.5		●
PowerBook 540	\$1200 (8MB/240MB)		●			33MHz	4MB/36MB	240MB	●		9.5		●
PowerBook 540c	\$1400 (8MB/320MB)		●			33MHz	4MB/36MB	320MB	●		9.5		●
PowerBook 190/66	\$750 (8MB/500MB)		●			33MHz	8MB/40MB	500MB	●		9.5		●
PowerBook 190cs/66	\$1025 (8MB/500MB)		●			33MHz	8MB/40MB	500MB	●		10.4		●
PowerBook 5300/100	\$1150 (16MB/500MB)	●				100MHz	8MB/64MB	500MB	●		9.5		●
PowerBook 5300cs/100	\$1700 (16MB/500MB)	●				100MHz	8MB/64MB	500MB-750MB	●		10.4		●
PowerBook 5300c/100	\$2100 (16MB/750MB)	●				100MHz	8MB/64MB	500MB-750MB	●		10.4		●
PowerBook 5300ce/117	\$2600 (32MB/1.0GB)	●				117MHz	32MB/64MB	1.1GB	●		10.4		
PowerBook 1400cs/117	\$2900 ^{E,F} (12MB/750MB)	●				117MHz	12MB/64MB	750MB	●	●	12.1		
PowerBook 1400c/117	\$3500 ^E (16MB/1.0GB)	●				117MHz	16MB/64MB	750MB	●	●	12.1		
PowerBook 1400c/133	\$4000 ^E (16MB/1.0GB)	●				133MHz	16MB/64MB	1.0GB	●	●	12.1		
PowerBook 3400c/180	\$5000 ^{E,G} (16MB/1.3GB)	●				180MHz	16MB/144MB	1.3GB	●	●	12.1		
PowerBook 3400c/200	\$5500 ^E (16MB/2.0GB)	●				200MHz	16MB/144MB	2.0GB	●	●	12.1		
PowerBook 3400c/240	\$6500 ^E (16MB/3.0GB)	●				240MHz	16MB/144MB	3.0GB	●	●	12.1		

● = yes. ^A Fair price is for used unit in good condition; these prices may be lower than prevailing prices. ^B Up to 17-inch monitor, 832 by 624 pixels at 256 colors; except for one 3400, which has up to a 19-inch computer. ^F \$2500 with no CD-ROM drive and 12MB of RAM. ^G \$4500 with no CD-ROM drive.

Apple Care has an advantage.

Screens Matter A black-and-white screen (no grays) is not suitable for Web browsing; a gray screen usually works adequately for Web browsing, but a color screen, internal or external, is much better. Passive matrix screens are much maligned today but work adequately for text and light-duty graphics. Some recent color passive matrix screens, such as the 1400's, work quite well, although active matrix screens still have a wider viewing angle and faster updating. However, if

you want to run your PowerBook on the deck or beach, note that color screens are unreadable in strong sunlight.

Buyer Beware As with any computer purchase, exercise caution. If at all possible, see and test what you're getting before you buy it. Ask questions about the machine's history and any warranties. Bring an expert with you. Remember, laptops are easily damaged. I would not buy a laptop sight unseen from a private party, and only with a money-back guarantee from a dealer.

Use a credit card if you're buying through mail order. Talk to dealers, ask your user group, peruse classified ads, and get a feel for what's out there. Then go shopping; there are many well-cared-for PowerBooks that still have useful lives looking for a home.

Best Things to Add

If you have or buy a PowerBook, you should consider the following additions:

Memory—up to 40MB or as much as the PowerBook allows—

aids today's applications.

A larger-capacity hard drive, especially on older PowerBooks with less than 200MB. Large capacity—over 500MB—internal SCSI hard drives are hard to find, but ArtMedia (408/980-8988) is developing 1GB and 1.4GB SCSI drives by modifying IDE mechanisms from IBM. Those models that take IDE drives (the 150, 190, 1400, 2300, 3400, and 5300) accept large-capacity drives easily.

A replacement battery may be essential for older Power-

800 by 600 pixels						OTHER FEATURES				
	Active Matrix	Passive Matrix	Color	Gray Scale	Black and White	Video Port ^a	Weight (in pounds)	Battery	PC Card	Pointing Device
		●			●		5.1	100 lead acid		25mm trackball
		●			●		6.8	140-180 NiCd		30mm trackball
		●			●		6.8	140-180 NiCd		30mm trackball
	●				●		6.8	140-180 NiCd		30mm trackball
		●		4			5.5	140-180 NiCd		30mm trackball
		●		16		●	6.8	140-180 NiCd		30mm trackball
		●		16		●	6.8	140-180 NiCd		30mm trackball
	●			16		●	6.8	140-180 NiCd		30mm trackball
		●	256			●	7.0	140-180 NiCd		30mm trackball
	●		256			●	7.1	140-180 NiCd		30mm trackball
		●		16		w/dock	4.2	Duo NiMH		19mm trackball
		●		16		w/dock	4.2	Duo NiMH		19mm trackball
	●			16		w/dock	4.2	Duo NiMH		19mm trackball
	●		256/1000s ^c			w/dock	4.8	Duo NiMH		19mm trackball
	●			16		w/dock	4.2	Duo NiMH		19mm trackball
	●		256/1000s ^c			w/dock	4.8	Duo NiMH		19mm trackball
	●		256/1000s ^c			w/dock	4.8	Duo NiMH		tappable TrackPad
	●			16		●	6.3	500 NiMH	^d	TrackPad
	●		256			●	6.4	500 NiMH	^d	TrackPad
	●			64		●	7.1	500 NiMH	^d	TrackPad
	●		256/1000s ^c			●	7.3	500 NiMH	^d	TrackPad
	●			16		optional	6.0	190, 5300, 3400 NiMH	●	tappable TrackPad
		●	256			optional	6.3	190, 5300, 3400 NiMH	●	tappable TrackPad
		●		16		●	5.9	190, 5300, 3400 NiMH	●	TrackPad
		●	256			●	6.2	190, 5300, 3400 NiMH	●	TrackPad
	●		1000s			●	6.2	190, 5300, 3400 NiMH	●	TrackPad
●	●		1000s			●	6.2	190, 5300, 3400 NiMH	●	TrackPad
●		●	1000s			optional	7.1	1400 NiMH	●	tappable TrackPad
●	●		1000s			optional	7.0	1400 NiMH	●	tappable TrackPad
●	●		1000s			optional	7.0	1400 NiMH	●	tappable TrackPad
●	●		1000s			●	7.4	3400 Lilon	●	tappable TrackPad
●	●		1000s			●	7.4	3400 Lilon, NiMH	●	tappable TrackPad
●	●		1000s			●	7.4	3400 Lilon, NiMH	●	tappable TrackPad

TABLE CONTINUES

books, and is useful for any PowerBook model.

An internal modem or PC Card slot makes telecommunications on the road easier, even if the model is limited to 14.4- or 19.2-Kbps internal modems. You can connect a faster modem through the serial port when at your desk.

An Ethernet interface allows smoother connection to desktops. Built-in Ethernet is best, followed by a PC Card or SCSI adapter. Serial-port Ethernet adapters are too slow.

A second AC power adapter makes packing the PowerBook easier—leave one adapter at your desk and the other in your travel case.

Processor upgrades make sense for some PowerBook models. The 500-series PowerBooks can be upgraded with a 117MHz PowerPC processor card from Newer Technology (\$679 with no RAM, \$779 with 8MB of RAM). And for \$675, Newer offers a 200MHz 603e processor card with a 128K cache for the PowerBook 1400.

Product	Strong points	Weak points
PowerBook 100 PowerBook 140 PowerBook 145, 145B PowerBook 170 PowerBook 150	These early models make sense only if they're really cheap. The 100 works well on RAM disk; the 170 has a nice screen for text.	A limit of 8MB of RAM and black-and-white screens restrict you to text work; Web browsing is difficult. Batteries charge slowly. The 100 has a poor trackball and a lead acid battery. The 150 has no ADB port.
PowerBook 160 PowerBook 165 PowerBook 180 PowerBook 165c PowerBook 180c	Have a video-out port. Acceptable for Web browsing, especially with an external monitor. Internal 28.8-Kbps modem available.	Some software requires a faster or later processor. Internal screens do not show full 640-by-480 image except on the 180c. Slow-charging batteries. 165c and 180c have a short battery life.
PowerBook Duo 210 PowerBook Duo 230 PowerBook Duo 250 PowerBook Duo 270c PowerBook Duo 280 PowerBook Duo 280c PowerBook Duo 2300c	Light and compact. Early Duos can be upgraded to PowerPC. The 250 and 280 have excellent monochrome screens; the 2300c has the best color screen.	Have poor battery contacts and no PC Card support. The fastest internal modem is 14.4/19.2 Kbps. Older models need keyboard replacement. The color screens in the 270c and 280c are small. Docks add to cost.
PowerBook 520 PowerBook 520c PowerBook 540 PowerBook 540c	Have built-in Ethernet, and are upgradable to PowerPC. Make a good replacement for desktop Mac.	The fastest internal modem is 14.4/19.2 Kbps. Screen hinge screws may need tightening.
PowerBook 190/66 PowerBook 190cs/66 PowerBook 5300/100 PowerBook 5300cs/100 PowerBook 5300c/100 PowerBook 5300ce/117	The 190s are effective laptops, with passive matrix screens, for a modest price. Once reworked, the 5300 usually performs well. The 190 and 5300 accept 3400-series expansion-bay drives (except CD-ROM drives).	Need to be reworked by Apple, with reports of problems even after some initial rework. Require PC Card for Ethernet. 190 needs optional video card for external monitor.
PowerBook 1400cs/117 PowerBook 1400c/117 PowerBook 1400c/133 PowerBook 3400c/180 PowerBook 3400c/200 PowerBook 3400c/240	Internal CD-ROM drive available. The passive matrix screen 1400cs is acceptable; the active matrix screen version updates faster for multimedia. The 133MHz 1400 has a 128K cache. The 3400, the fastest PowerBook, has a 256K cache.	The 1400 requires a PC Card for Ethernet. You have to add video output; and the keyboard doesn't tilt. The bulky 3400 supports only one logical monitor.

to PCI signals. Newer Technology (316/943-0222, <http://www.newertech.com>) plans an under-\$1000 dock that connects to the expansion bay, scheduled to ship in April.

Mapping the Ports

The 3400 has connectors on two sides. On the left side are the stereo audio-in and -out ports, and an ADB port hides behind a small fold-down door. The expansion bay for a CD-ROM or floppy drive is on the right.

Audio-In Advances The audio-in port takes line-level signals, as all PowerBooks starting with the 500 series do. In addition, the port finally includes the extra-deep receptacle with a power contact for the PlainTalk microphone (not included with the 3400); it also accepts a standard stereo miniplug. The audio-in circuit supports playthrough from the audio-in port or CD audio from the CD-ROM drive, so you can hear what's fed into the port.

Better Built-in Speakers The four speakers built into the 3400 are another step forward. Two 15mm (0.6-inch) stereo speakers that sit just above the keyboard produce the high frequencies. Two 50mm (2-inch) monaural speakers behind the screen produce lower frequencies; the sound comes out through narrow grilles on the edges of a bulged-out screen cover. These will no doubt be mistakenly described as subwoofers, but by stereo-speaker standards, these are midrange speakers.

The four speakers together produce peak output at 3KHz with considerable falloff even at 1KHz; the low frequencies are pretty much gone by 250Hz. Even with no real bass, the 3400 has the best speaker system yet built into any laptop and meets its design goal—adequate sound for multimedia demos.

Industry-Standard Infrared The infrared port for the first time supports IrDA protocols, the standard among Windows laptops, although communication is possible only with a suitable driver; at press time, driver support was uncertain. The port also supports Apple's earlier IRTalk protocol for connecting to a LocalTalk network; this does not support an infrared connection to a Newton MessagePad.

PC Card with DMA The PC Card interface supports the usual two Type II cards or one Type III card. Because the PC Card interface now uses DMA, it requires updated drivers; all the companies that support PowerBooks plan to offer new drivers. The PC Card interface does not support CardBus, an enhanced PC Card interface with PCI features.

Other Ports RJ-45 Ethernet/modem, serial, HDI-30 SCSI, and video-out ports reside behind a fold-down door in the back. Under pressure, the door falls off without damage. The lone serial port includes GeoPort functionality, so you can connect an ISDN adapter or transfer images fast from a QuickTake camera. The 3400 supports SCSI disk mode.

The Power Behind It All

The 3400 uses the same power connector as the Duos and the 1400; all run off 24 volts. AC adapters and car-battery adapters are interchangeable among all three PowerBook models, except that the 1.04- and 1.5-amp AC adapters made for the Duo can either charge or run a 3400 (and 1400) but can't do both at the same time. The 3400 comes with a 1.88-amp AC adapter that's essentially identical to the adapter for the 1400.

Apple says improvements in battery technology increase performance rather than battery life, so the 3400c runs no longer

than earlier PowerBook models. All 3400's come with a LiIon battery good for two to four hours of operation, according to Apple. Although the battery slot is physically compatible with batteries for the 5300 and 190, the LiIon battery will neither operate nor charge in the earlier PowerBooks.

The original LiIon batteries that Apple recalled at the introduction of the 5300 will not work in a 3400. But batteries sold for use in the 5300 and 190—all nickel-metal-hydride (NiMH)—will work in the 3400.

VST expects to have a high-capacity \$200 NiMH battery for the 3400 (compatible with the 5300 and 190) available in March; VST says the battery will run a 3400 for up to five hours. But NiMH batteries are heavier than LiIon and have a higher self-discharge rate, so they lose power more quickly during storage.

VST has a new version of its \$180 external battery charger

nection Kit 1.2, Apple Remote Access 2.1 client, Claris Organizer 2.0, and ForeFront's WebWhacker 2.0.

Shape and Weight

The 3400 is quite a handful to carry—the weight and thickness cry out for a handle or a carrying case. Users who don't do multimedia presentations might wish that Apple had skipped the lower-frequency speakers, leaving the top flat instead of bulging.

Once opened, the 3400 is straightforward to use. It has retractable legs to incline the keyboard, an advantage over the 1400. The keyboard size and layout remain unchanged from those of the PowerBook 500 series and all models in between. The keyboard has the same cumbersome cursor-key layout and still lacks page-up and page-down keys.

With a traveling weight of 8.4 pounds with CD-ROM drive

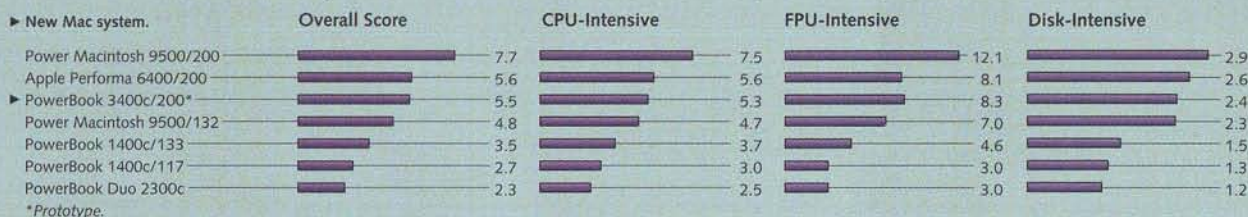


Apple Rivals the PC with a Truly Faster PowerBook

The PowerBook 3400c is designed for speed: its 180MHz-to-240MHz 603e CPU, 256K cache, and other hardware improvements, including an internal PCI-based slot, push its performance. The 200MHz prototype we tested outperformed other shipping PowerBooks by a huge margin.

Longer bars are better. Results are times as fast as a Centris 650 (Centris 650 = 1.0). Products are listed from fastest to slowest overall.

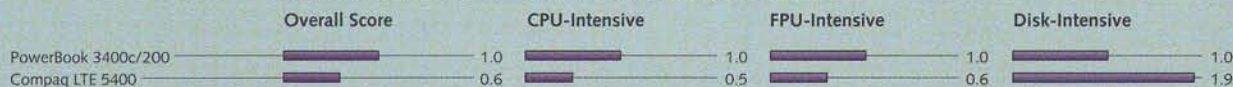
New Mac system.



* Prototype.

The 3400c gives its Windows rivals a run for the money: a first for the PowerBook. The 3400c/200 prototype outran the Compaq LTE 5400, a 150MHz Pentium notebook, in most operations we tested. No 200MHz Pentium notebook was shipping when we performed our tests; we expect that the 3400c would still be faster in most FPU- and CPU-intensive tasks—with the exception of Microsoft Excel, which ran much faster on the PC. The only area where the PC beat the 3400 easily was in FileMaker Pro searching and finding. The PC's more efficient I/O subsystem also helped it outperform the Mac in launching applications, although only by a slim margin.

Longer bars are better. Results are times as fast as a PowerBook 3400c/200.



Behind Our Tests

For details on our Mac-only tests, see *Mac SuperGuide*, January 1997. To compare platforms, Macworld Lab tested cross-platform applications on the PowerBook 3400c and the Compaq LTE 5400 to determine real-world performance for three critical performance areas: CPU-, FPU-, and disk-intensive tasks. We average the results to determine

the overall score. Note: these results are not comparable to other Macworld benchmarks. The software included Microsoft Excel, Fractal Design Painter, Adobe Photoshop, Wolfram Research Mathematica, Specular Infini-D, Fractal Design Ray Dream Designer, and Claris FileMaker Pro.—Macworld Lab testing supervised by Mark Hurlow

for the 5300 and 190 to charge 3400 batteries; the charger will have a revised ROM for the LiIon batteries and two power connectors to accommodate both kinds of AC power adapters.

System Software and More

Apple ships System 7.6 (see "Should You Buy Mac OS 7.6?" in *News*, this issue) with the 3400c and includes a valuable PowerBook utility called Location Manager that will work with all earlier PowerBook models except the PowerBook 100.

Location Manager lets you define the computer's configuration for different locations—for example, home and office. When you select the location (information saved as a file) Location Manager automatically configures the computer, including communications and power options.

Other bundled software includes the Apple Internet Con-

(7.4 pounds for the computer, 1 pound for the AC adapter and power cord), the 3400c falls into the middleweight range for high-performance laptop computers.

The Last Word

The 3400c delivers the goods: if you want a fast PowerBook, you won't be disappointed. Its guts—up to a 240MHz CPU, PCI-based slot, DMA interface, and up to 144MB of RAM—are designed to push performance. Its case, like that of other laptops with large LCD screens, is large, so you're in trouble in coach class if the seat in front is reclined. But if you're making presentations, the 3400c produces the best multimedia demonstrations yet seen in a laptop. **m**

Contributing editor CARY LU has covered PowerBooks since they came to be.

ONLINE ON TIME

DATABASE-DRIVEN WEB SITES DELIVER DYNAMIC, ULTRA-TIMELY CONTENT

DATABASES AND WEB SITES ARE A MARRIAGE made in heaven. It's no wonder: databases store information, and Web sites deliver it. Databases enable people to search for tidbits that are relevant to them, while the most appealing Web sites are timely and customized to meet visitors' needs and tastes. ... Is your Web site a candidate for the Web-database connection? The answer is yes if you're using a database to store anything your customers or coworkers might find useful—from price lists to inventory to softball-team schedules. By tying your database to your Web site, you enable people to access it directly: they get the most updated information immediately without human intervention. You eliminate the need to export information from the database and then manually create HTML pages. ... On a company intranet, database linking can also save money. Rather than buying a copy of the database manager for every employee, you buy one for only those employees who need the program's rich report-printing features and the fastest performance. Casual users delete, update, and add records to the

database through a Web browser.

Pardon the pun, but Web-database publishing is a hot field. In the Macintosh world, most of the action centers around Claris's (<http://www.claris.com>) FileMaker Pro. This is partly because of FileMaker Pro's dominance among Mac database managers: Web database publishing requires third-party products, and developers of these products want the largest possible market. But FileMaker Pro is also the Web database of choice for the same reasons it's the Mac database of choice: it's easy to use, reasonably priced, and powerful (if you're working with client-server databases, see the sidebar, "Beyond FileMaker Pro: Alternative Web-Database Options").

To find out what works best with FileMaker Pro, I tested six freeware and commercial database packages for it—programs that Web developers use to Web-enable FileMaker Pro databases (see the table, "Database Links: Getting FileMaker Pro Talking to the Web"). These key

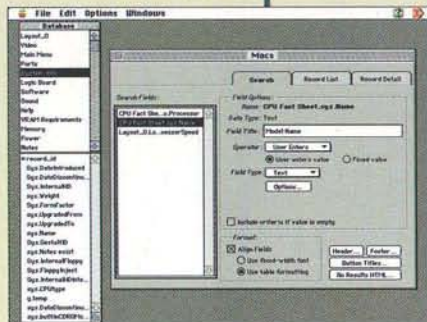
Three Steps to the Tango

EveryWare's Tango Editor lets you drag and drop your database into the Web. Here, the program's Query Builder mode is being used to Web-enable a database of Macintosh-model specifications.

STEP 1

What You Do

In step 1, build a search screen by dragging field names from the Database palette. Use the buttons in the lower-right corner to customize the page's header, footer, button titles, and other elements.



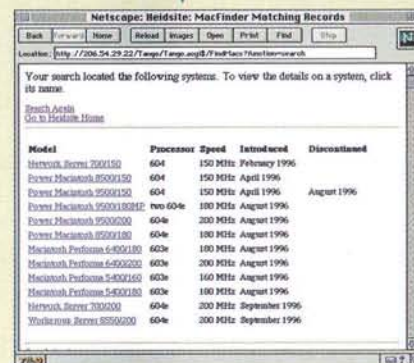
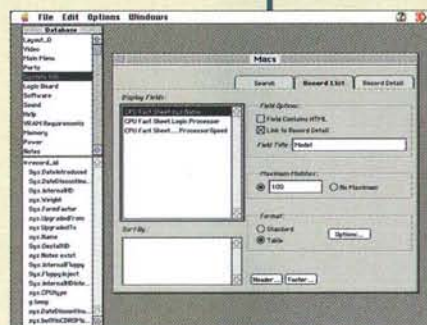
What It Looks Like

Each field you drag into the Search Fields list becomes available for searching. Tango Editor combines the custom HTML you entered with the search fields to generate a search page. Here, a search for all Macs with processor speeds over 132MHz has been specified.

STEP 2

What You Do

In step 2, specify the fields you want to appear in the search results page. For faster performance, include only a few fields in this screen—just enough for visitors to identify the record that they're looking for. Then, use the Link to Record Detail box to enable visitors to click on the record whose details they want to view.



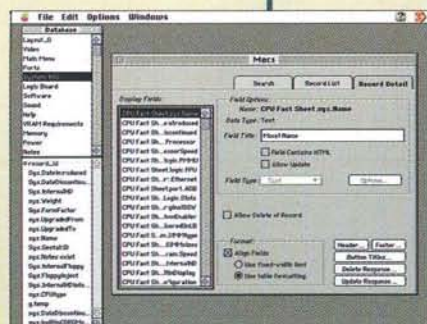
What It Looks Like

The search results page shows the records that meet the search criteria. The Model column's entries are hyperlinks that enable a visitor to view a found record's contents.

STEP 3

What You Do

In step 3, specify which fields you want to appear in the Record Detail page. To enable a visitor to delete or update a record, check the Allow Delete of Record or Allow Update of Record box.



What It Looks Like

The Record Detail page shows the fields you specified. It's a good idea to include a link in the page header that enables visitors to conduct another search or branch to a different area of your site.

components in the Web-database connection are known as CGI (Common Gateway Interface) programs—they're the intermediaries that essentially enable Web surfers to operate the server's copy of FileMaker Pro by remote control. (As the table indicates, some are implemented as server plug-in modules, which are generally faster, and some products include both CGI and plug-in versions. Here, I use CGI to refer to both, for brevity's sake.) CGIs process data that users enter into browser-based forms; they find, delete, and add records; and they route found records to the Web server, which blasts the records to users' browsers (see the diagram, "Three Steps to the Tango").

Using a Power Mac 8500/132 as a testbed, I Web-enabled a variety of databases to see which CGI tools provide the easiest setup, the broadest array of features, and the fastest database access. The results are a mixed bag of strengths and weaknesses: your choice depends on your own requirements for speed of development, ease of access, and upgrade path.

Assembling the Pieces

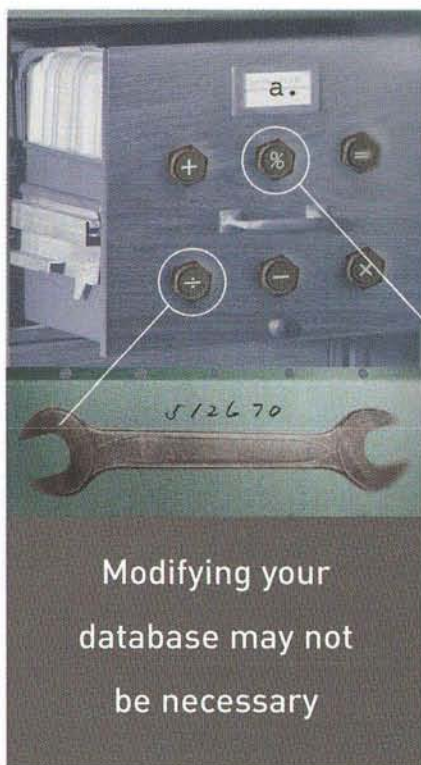
The marriage of a database and a Web site may be a happy one, but like any union, it requires planning and cooperation. And there's a dowry: the lovebirds won't talk to each other without an investment in time and additional software. Let's run down the bridal registry.

For starters, you need a Mac running Web-server software and a copy of FileMaker Pro 3.0. StarNine's (<http://www.starnine.com>) WebStar is the Macintosh world's most popular Web server, but all of the products I tested also work with any Mac Web server that uses the WebStar Apple-event mechanism or supports WebStar plug-ins (and most do).

The FileMaker Pro database-publishing camp is divided equally between freeware and commercial products. Each of the freeware offerings has its strengths, but all force you to sacrifice either performance or features. Competition among the three commercial CGIs is furious; new versions of all three products shipped as I researched this article.

Every marriage ceremony is different, and every database-publishing product takes a unique path down the aisle. The most dramatic differences between products lie in the steps you take to unite database and Web site.

Some CGIs require you to modify your database in order to Web-enable it—specifically, by adding calculation fields containing HTML that the CGI uses to process and format data. CGIs that take this approach include Web Broadcasting's (<http://www.macweb.com>) \$245 Web-FM 3.0; Russell Owen's (<http://rowen.astro.washington.edu>) freeware ROFM 4.1; and Claris's own FileMaker Pro CGI. Blue World Communications' (<http://www.blueworld.com>) \$299 Lasso 1.1 and its freeware Lasso Lite 1.0.6, along with EveryWare Development's (<http://www.everyware.com>) \$349 Tango 2.1.1 for FileMaker Pro, don't require modifications to



the database, but instead they rely on separate files that control formatting.

Each approach has its strengths. Calculation fields are fast, and using them enables you to tap FileMaker Pro's array of text-handling and number-crunching functions.

But calculation fields aren't for the faint of FileMaker—if you haven't mastered them, use a product that relies on external format files, such as Lasso or Tango for FileMaker Pro. Also, in institutional settings, individuals may not be permitted to modify a database's structure. And even if yours is a one-person shop, you might simply prefer to keep

your database files pure rather than blurring the lines between FileMaker Pro's duties and the CGI's.

Comparing Development Features

You use a database-publishing package's development features to Web-enable a specific database: to specify which fields you want to be Web-searchable; whether surfers can add, modify, or delete records; and how the data that surfers locate appears on their browsers.

For fast development and a gentle learning curve, you can't beat EveryWare Development's Tango for FileMaker Pro. Its Tango Editor utility makes database publishing a click-and-drag proposition (see "Three Steps to the Tango").

Tango Editor allows you to build query documents, which the Tango CGI uses to display search forms and found records. To help you build the most common types of query documents, Tango Editor provides wizardlike windows called Query Builders. With the Query Builders you can put a database on the Web in less than a minute—I timed it. The resulting screens aren't visual feasts, but windows that hold custom HTML for headers, footers, and overall page formatting are just a click away. If you use an HTML editor such as Adobe PageMill, you can use it to design page elements and then drag and drop their HTML into Tango Editor.

When you need more-sophisticated query documents, such as ones that perform calculations on database information or that perform different activities depending on a condition, you use Tango Editor's visual programming mode. Tango's gentle learning curve becomes a much steeper slope here. You'll need to learn a new Tango-specific vocabulary and master a flock of option dialog boxes.

Tango's query documents also work with EveryWare's Tango Enterprise 2.1.1 (pricing begins at \$995), which Web-enables high-end, client-server databases as well as FileMaker Pro. This not only gives you a growth path to the enterprise databases that many big businesses and institutions use, but it also enables you to mix and match data from disparate data sources on a single screen—unique among the products I tested.

Neither Lasso nor Web-FM offers the immediate gratification of Tango Editor. With Lasso you create format files containing Lasso-specific tags and com-

mands that control the CGI. A separate format file is required for each page that presents data from the database; this contrasts with Tango, in which one query document can handle both search summaries and search details.

You create Lasso format files using any HTML or text editor. Lasso includes a utility, FM Link, that provides palettes from which you can drag and drop Lasso tags, database field names, and so on. But FM Link doesn't provide the hand-holding of Tango's Query Builders; it just cuts down on typing. Lasso 2.0, scheduled to ship this spring, will include a Java applet that provides an interface similar to FileMaker Pro's for creating format files. If the final version is as impressive as the demonstration I saw at January's Macworld Expo, Lasso 2.0 may approach or exceed Tango's ease of use.

As for Web-FM, Web Broadcasting is working on a utility, called Tag-FM, that will create calculation fields for you and also tie in to HTML editors; it was not available for testing.

And what about the freeware packages? Russell Owen's ROFM requires you to edit the database file. For each field in the database, you must create a calculation field that will hold the HTML-formatted versions of the data that ROFM will return.

Click-and-drag database publishing it

isn't. Lasso Lite works with Blue World's FM Link. Claris FileMaker Pro CGI provides no development-streamlining aids; indeed, it's sparsely documented and requires you to do some AppleScript programming. ROFM or Lasso Lite is a better alternative.



FileMaker Advanced Feature Support

Getting up to speed is one thing; what you can do when you get there is another. If you're a FileMaker Pro guru, you might be using scripts to automate tasks, and you might be linking FileMaker Pro with other programs via Apple events. Many of the commercial CGIs enable you to extend these advanced features to a Web site (none of the freeware programs support these features). Similarly, if your database relies on advanced FileMaker Pro features, you'll want a CGI that supports the features you need. Examples include support for repeating fields (which hold multiple values), for picture fields (which hold graphics), and for relations and portals (which link data files and enable one file to display or reference information in another).

Of the commercial offerings, Lasso and Web-FM provide the best support for advanced FileMaker Pro features. Both programs enable you to display, update, and add to repeating fields. Both also support relations and portals, but Web-FM edges out Lasso by enabling you to add and update related records; Lasso enables you only to display them. Tango doesn't support relations, although you can display portals through a cumbersome process. All three programs support FileMaker Pro scripts, and Tango can send

Beyond FileMaker Pro: Alternative Web-Database Options

Claris FileMaker Pro dominates the Macintosh world, but the Mac doesn't exactly dominate the computer world. Big business and other institutions rely on what I call alphabet-soup databases: ones built around SQL (structured query language, an industry-standard language for structuring and accessing relational databases) and ODBC (Open Database Connectivity, a Microsoft-created standard for database access).

If you want to Web-publish data stored in one of these databases, you need a Web-enabling tool that supports your database. EveryWare's Tango Enterprise 2.1.1, which is mentioned in the main article, can Web-enable SQL, ODBC, and FileMaker Pro databases—all with the identical click-and-drag simplicity of Tango for FileMaker (see the screen shot "High-Stepping Tango"). Tango Enterprise's unique ability to unite enterprise and FileMaker Pro

databases breaks down the walls between various database engines: it enables you to mix and match data sources on a single Web page, and it allows you to create search forms that access disparate databases. EveryWare also sells the Macintosh-based \$695 Butler SQL.

StormCloud Development (206/812-0177, <http://www.ndev.com>) offers the \$595 Web-DBC, which Web-enables ODBC and SQL databases.

Some developer-oriented Macintosh database-management packages are putting their own unique spin on the Web: rather than connecting to a server package such as WebStar, they're acting as servers themselves. ACI US's (408/252-4444, <http://www.acius.com>) \$299 4th Dimension 6.0, scheduled to ship by the time you read this, will enable Web visitors to access 4D databases and convert 4D's on-screen forms into HTML on the fly.

You can also Web-enable 4D databases through WebStar or other Web-server packages by using Foresight Technology's (817/731-4444, <http://www.fsti.com>) \$89 NetLink/4D. The new version, 2.0, supports Netscape cookies, does automatic character translation (converting special characters so they can be sent across the Internet), and operates as a WebStar plug-in.

Blyth Software (415/571-0222, <http://www.blyth.com>) has Web-enabled its \$999 Omnis 7 relational database with its Omnis Web RAD (short for rapid application development). Omnis Web RAD translates Omnis reports into HTML and converts graphics stored in Omnis databases into GIF and JPEG formats.

Apple events to other applications.

Tango 2.1.1 and Lasso 1.1 can serve up PICT images stored in a FileMaker Pro database by converting them into JPEG images on the fly. Tango handles graphics conversion better than Lasso, which relies on Yves Piguët's freeware (<http://iawww.epfl.ch/>) clip2gif utility—a kludgy approach. Web Broadcasting's \$125 PICT-FM utility adds graphics conversion to any FileMaker Pro CGI.

Safe and Sound

Security is a common concern in the database world. You may want to give some users modification privileges and others browse-only privileges. Or you may want to hide some fields (such as a personnel database's salary field) from unauthorized users.

Most FileMaker Pro Web publishing tools support these as well as a variety of Web-specific security features. In all three commercial programs you can specify whether visitors can update or delete a found record. Controlling updates and deletions is easiest in Tango for FileMaker Pro, where you can simply check a box in Tango Editor to designate whether users can delete or update a record.

But Web-FM and Lasso provide a more complete array of security features than does Tango. With Tango, you can't specify that some users be allowed only

Database Links: Getting FileMaker Pro Talking to the Web

Product	Company	Star Rating *	Price	Contact	CGI	Server Plug-In
Freeware CGIs						
FileMaker Pro CGI	Claris	★★★/5.3	free	408/987-7000	yes	no
Lasso Lite 1.0.6	Blue World Communications	★★★/6.5	free	206/313-1051	yes	no
ROFM 4.1	Russell Owen	★★★/6.5	free	http://rowen.astro.washington.edu	yes	no
Commercial CGIs						
EDITORS' CHOICE						
Lasso 1.1	Blue World Communications	★★★★/7.2	\$299	206/313-1051	yes	yes
EDITORS' CHOICE						
Tango for FileMaker Pro 2.1.1	EveryWare Development	★★★★/7.3	\$349	905/819-1173	yes	yes
Web-FM 3.0	Web Broadcasting	★★★★/7.0	\$245	415/329-9676	no	yes

* Based on features, implementation, innovation, performance, reliability, ease of use, and value. (See Star Ratings section for full explanation.)

to browse and others be allowed to modify. In Web-FM and Lasso, you can.

Bells and Whistles

Most CGIs also provide features specific to the Web world. User-identification features let the CGI keep track of users as they access the database, to track the kinds of information they're requesting or maintain security logs. Lasso, Web-FM, and Tango all provide logging features.

All three products also enable you to

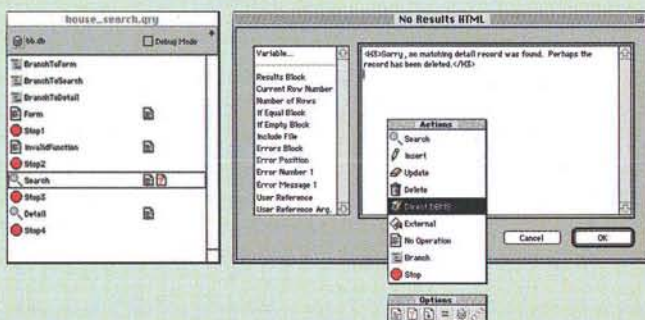
retrieve and store information about a user's browser, such as the browser name and version and the user's IP address or domain name. You can combine this capability with the IF-THEN conditional features all three programs provide to tailor page display to take advantage of browser-specific features, for example, or to control which fields are displayed based on a visitor's domain address.

All three programs also provide *variables*, which enable you to store and track

Different Strokes

There's also a set of products that put their own spin on the database-Web connection. TecSoft (212/229-9400, <http://www.tecny.com>) has created a unique application, called HTML Generator, that links FileMaker Pro with Canto's Cumulus multimedia-database application, which stores images as well as audio files, QuickTime movies, and other media types. With HTML Generator you can build the kinds of dynamic Web sites that were formerly the province of high-end, object-oriented databases.

Purity Software's (512/328-2288, <http://www.purity.com>) \$495 WebSiphon incorporates a proprietary scripting language and a Web-optimized database



High-Stepping Tango Tango Enterprise's Query Editor provides an iconic programming scheme that lets you build SQL queries, such as this one for a house-search application (left window). The right-hand window shows how you can customize the messages Tango displays by entering HTML into a window.

manager called Verona. WebSiphon is an excellent tool for creating dynamic site features such as shopping carts, online polls, and conferencing boards, as well as for jobs such as delivering

browser-optimized pages.

Canto (415/905-0300, <http://www.canto-software.com>) offers a CGI that Web-enables databases stored in Canto's Cumulus media database. With

the Cumulus Internet Image Server, you can enable Web users to search and download from databases containing stock photography, clip art, music clips, and other media types. You must also own the Cumulus Network Image Database, which starts at \$1995.

Pacific Coast Software's (619/675-1106, <http://www.pacific-coast.com>) \$695 WebCatalog is a solid, if difficult-to-learn, package for creating online shopping systems. WebCatalog provides shopping-cart features and can also display rotating advertising banners. (EveryWare also offers an online shopping system, the \$4995 Tango Merchant.) Finally, Pacific Coast has created PhotoMaster, a \$99.95 Web image-database application.

information as a user navigates a database application. Variables, also called tokens or cookies, are important ingredients in online shopping-cart applications, where you might use them to store order numbers or customer IDs as visitors shop.

For some tasks, you might want to have a copy of a newly entered record e-mailed to a specified address—for order verification, for example. Among the commercial database publishing packages, only Blue World's Lasso provides built-in e-mail forwarding features; you can graft e-mail forwarding onto Web-FM with a free Web Broadcasting utility, FMailer. The freeware ROFM also provides e-mail forwarding.

Speed Counts

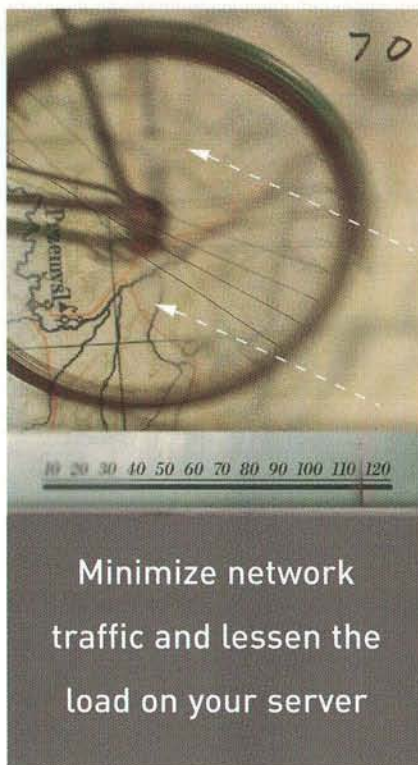
Ultimately, your site's users don't care how long it took you to Web-enable your database. They care how long it takes them to work with it: how quickly they see the records they're looking for and how quickly your site responds when they delete, update, or add records. As with any network application, much of the performance equation is out of your hands.

But some performance aspects are under your control. One is the way you design search summaries, those lists of records that meet a user's criteria. Never include more fields in this summary than are necessary for a user to identify which record he or she wants to view. This minimizes network traffic and speeds your server.

Also, all of the CGIs I tested except for the Claris FileMaker Pro CGI enable you to return found records in small chunks—say, ten records at a time. You've seen this scheme in search sites such as Yahoo: only 10 or 15 hits appear on a page, and hyperlinks let you view the next or previous batch. Returning data in small chunks improves perceived performance and avoids clogging the network with data that users may never need.

The performance of the CGI itself also affects your site's response time. Most freeware CGIs are written in the AppleScript scripting language (with the exception of Lasso Lite). Scripted CGIs are generally slower than compiled CGIs, which are written in high-level programming languages such as C.

All the commercial CGIs are compiled. Of the three I tested, Lasso was the fastest. Previous versions of Tango were slow at adding to and updating databases, but EveryWare has fixed this problem.



The Last Word

The broad selection of Web-database products illustrates just how strong the Mac is in the Web publishing world. And it's only getting stronger. By the time you read this, ProVue Development (714/841-7779, <http://www.provue.com>) should be shipping its \$295 WebVue, which Web-enables ProVue's lightning-fast Panorama database manager (see *Reviews*, *Macworld*, June 1996). The preliminary version of WebVue I examined sported an approachable interface and some slick features, including the ability to preview forms without requiring a server—something no FileMaker Pro CGI permits.

Which FileMaker Pro database tool is for you? The freeware CGIs are a great way to test the database-publishing waters or Web-enable a database without taxing your budget. Blue World's Lasso Lite is the most polished freeware CGI, but it does not allow record updating or deletion and it lacks security features. However, its format files also work with its commercial cousin, Lasso, which does provide these features. This eases your upgrade path.

If you want surfers to be able to edit and add to a database, the best freeware CGI is Russell Owen's ROFM 4.1. (Note that ROFM requires the \$29 Acme Script Widgets, a shareware AppleScript extension from Acme Technologies [203/969-

1335, <http://www.acmetech.com>)).

As for the commercial FileMaker Pro Web enablers, each has unique assets. If you need to develop basic Web-database applications quickly—or if you anticipate migrating to an enterprise database system in the future—Tango for FileMaker Pro is the best choice. If you're a tag-oriented person, Lasso is for you. To tap the power of FileMaker Pro's calculation fields, get Web-FM.

Choosing among these three isn't easy, but fortunately you can try before you buy. Free trial versions of the products are available on their developers' Web sites; put them through their paces with your own databases to find the CGI that best meshes with your needs, your data, and your development tastes.

As for the high-end products, none provide the combination of power and simplicity of FileMaker and a Web-enabling CGI—a combination that, when you think about it, is what the Macintosh world is all about. **m**

Contributing editor and *Media* columnist JIM HEID is the author of *HTML & Web Publishing Secrets* (IDG Books Worldwide, 1997). Technical assistance by DEBORAH SHADOVITZ, a Los Angeles-based FileMaker Pro developer.

EDITORS' CHOICE

Fast Development

★★★★/7.3 Tango for FileMaker Pro 2.1.1

From zero to Web in under a minute: there isn't a faster way to Web-enable a FileMaker Pro database. Its compatibility with Tango Enterprise provides a growth path to high-end databases. **Company:** EveryWare Development (905/819-1173, <http://www.everyware.com>). **List price:** \$349.

Powerhouse Features

★★★★/7.2 Lasso 1.1

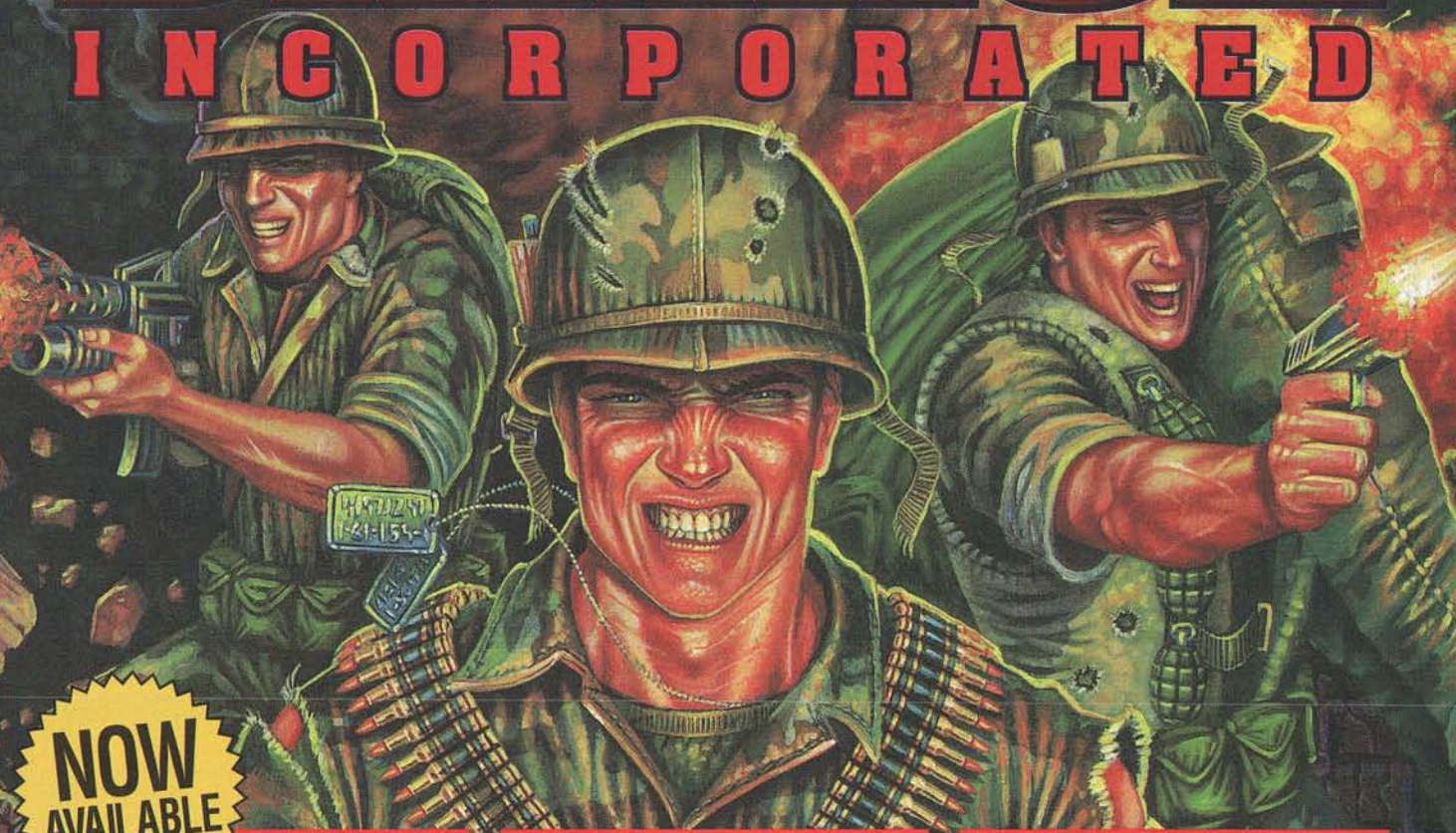
With excellent support for advanced FileMaker Pro features, outstanding formatting control, fast performance, and thorough documentation, Lasso is a database-publishing demon. **Company:** Blue World Communications (206/313-1051, <http://www.blueworld.com>). **List price:** \$299.

REAL PRODUCTS REAL RATINGS

Reviews you can trust Unlike other publications, *Macworld* rates only final shipping products, not prototypes. What we review is what you can actually buy.

DAMAGE

INCORPORATED



**NOW
AVAILABLE**



DYING IS THE EASY PART

Lead an elite special forces unit in this extraordinary 3D first-person shooting extravaganza. Command a squad of four highly-trained marines as you eradicate deadly enemies. Fight for your own life while strategically issuing orders to your squad. All in 3D. So real, you'll be a bloody wreck before it's over.

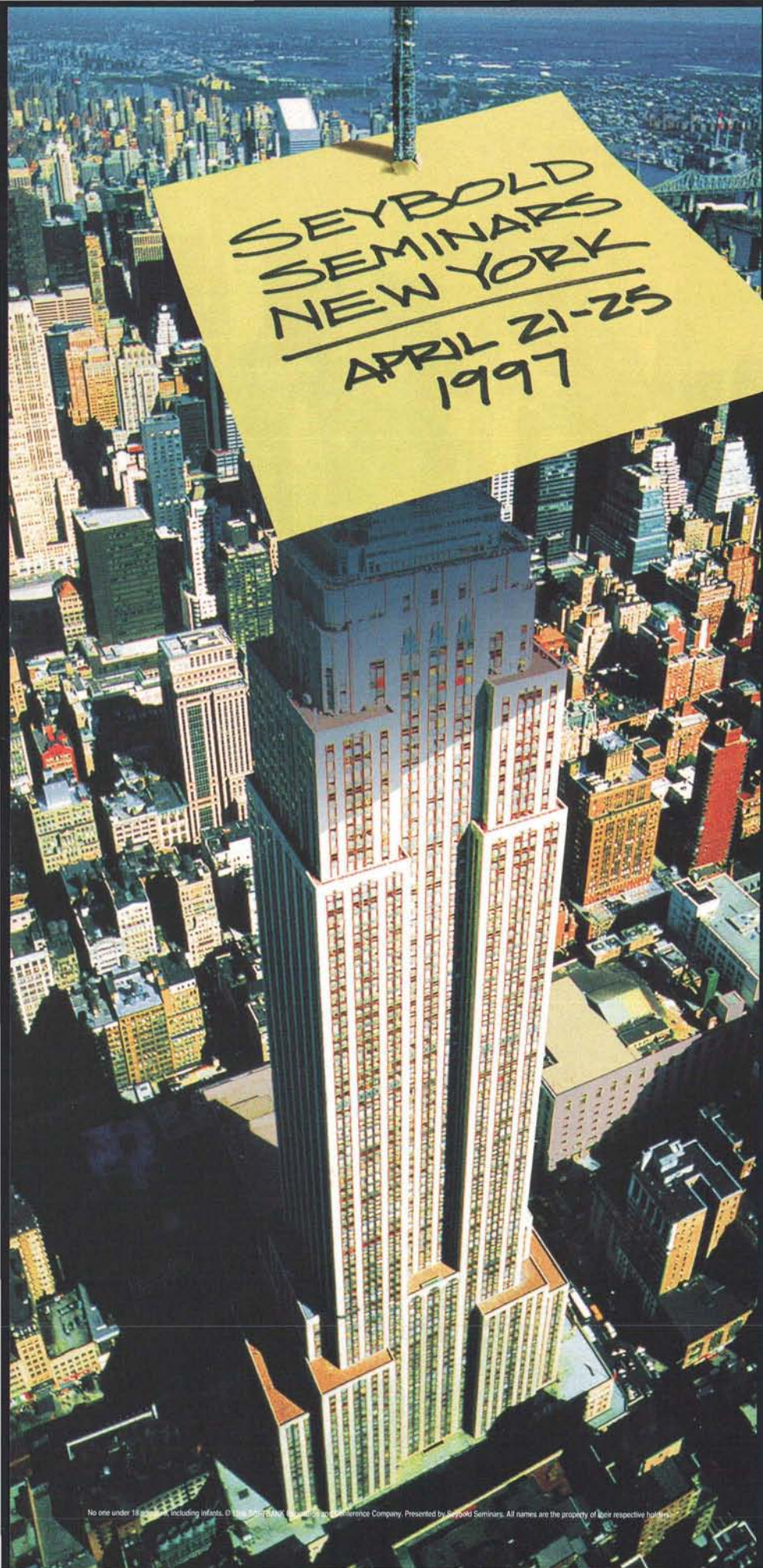
Call for a free catalog or visit our website at www.wizworks.com
Available now from your favorite reseller,
or by calling 800-229-2714
 Please add \$2.95 per order for shipping and handling if ordering by phone.

\$34⁹⁹
 MSRP: \$49.99

System Requirements: Any PowerMac or compatible
 with a CD-ROM drive and color monitor.

MACSoft[®]
 A GT Interactive Company
 2300 Berkshire Lane, Plymouth, MN 55411

Circle 30 on reader service card



SEYBOLD
SEMINARS
NEW YORK
APRIL 21-25
1997

Get a clear view of publishing technology at the highest level.

If you're into publishing, including graphics, printing, prepress, advertising or photography, see how technologies like the Internet and computer-to-plate are totally transforming your future.

The world's premier publishing event, Seybold Seminars gives you visionary educational programs and a look at the hottest products. All in the center of the publishing universe—New York City.

50+ powerhouse Conference sessions on publishing, the Internet and more

Special Interest Seminars on printing, the Internet and digital photography

In-depth Tutorials taught by experts that'll make your job skills soar

Dynamite Keynotes, plus the chance to network with 1000s of colleagues

300 top exhibitors demonstrating the latest products and solutions

FREE GUIDE & EXPO PASS—SAVE \$50

For your detailed educational guide and FREE 3-day Expo pass:

CALL: 888-800-8922

INT'L: +1-415-372-7072

WWW.SEYBOLDSEMINARS.COM

SEYBOLDNY

SEMINARS

**JACOB JAVITS
CONVENTION CENTER**

Main Conference: April 22-24, 1997

Seminars/Tutorials: April 21-25, 1997

3-Day Exposition: April 23-25, 1997

No one under 18 admitted, including infants. © 1997 Seybold Seminars, a Conference Company. Presented by Seybold Seminars. All names are the property of their respective holders.



BY DEAN ANDREWS

Beyond

ARE THE NEW 33.6-KBPS MODEMS REALLY FASTER?

MACWORLD LAB TESTS NINE MODELS TO FIND OUT.

28.8

THERE'S BEEN A LOT OF TALK LATELY ABOUT the World Wide Wait—that frustrating period of time you spend waiting for a graphics-heavy Web page to crawl across your screen. With an ever-increasing number of people logging on to the Internet, the traffic jams in cyberspace are bound to continue. To help reduce the time you spend waiting, many modem manufacturers have replaced 28.8-Kbps modems with new models that deliver up to 33.6-Kbps speeds.

But do 33.6 modems truly offer any significant advantages over 28.8 modems, or is the speed increase too small to notice? Do the new modems always outperform the older ones, or just under limited circumstances? And should those who already own 28.8 modems consider upgrading to the faster models? To find out, Macworld Lab evaluated nine 33.6 modems in terms of performance, software, and other features.

For Whom Do These Modems Ring?

The new 33.6 modems aren't the only game in town for high-speed connectivity. ISDN (Integrated Services Digital Network) lines and modems can deliver transmission speeds—up to 128 Kbps—that are significantly faster. But ISDN modems, such as Farallon's Netopia (company's estimated price, \$329; 510/814-5100, <http://www.farallon.com>), cost nearly twice as much as 33.6 modems.

Meanwhile, cable networks and modems promise a stunning transfer rate of up to 10 megabits per second. But two-



way cable networks are currently available in only a handful of U.S. cities. In the realm of more traditional modems, 56-Kbps analog transmission is the next step. A few telecommunications vendors, such as U.S. Robotics (<http://www.usr.com>) and Diamond Multimedia Systems (<http://www.diamondmm.com>), have announced plans to offer modems (or upgrades) in early 1997 that deliver up to 56-Kbps speeds when they're downloading information (not when uploading). For the time being, though, there is no agreed-upon standard for achieving 56-Kbps speeds. As a result, the 56-Kbps modem you purchase now may require a flash ROM or chip-set upgrade later to be compatible with the high-speed protocol that's ultimately agreed upon. For most people in the market for a new modem, then, a 33.6 model is the easiest, most affordable option.

Will You Notice the Difference?

In our evaluations, we set out to answer three main questions about 33.6 modem performance, especially as it compared with that of 28.8 modems.

• **Are 33.6 modems noticeably faster than 28.8 models?** As a rule, yes. The 33.6 modems comply with the International Telecommunications Union's enhanced V.34

specification, called V.34 Plus, and are capable of transferring data 17 percent faster than 28.8 modems—not a huge improvement, but nothing to sneeze at, either. In our tests, the top-performing U.S. Robotics Sportster 28.8/33.6 Faxmodem connected 57 percent of the time at speeds faster than 28.8.

• **Do 33.6 modems always run faster than 28.8 models?** No. The key difference between the two modems is that the newer models use the V.34 Plus transmission standard, which has been optimized to automatically compress data more efficiently *before* transmission to achieve faster throughput. But if a file you're downloading has already been compressed with a utility such as Aladdin Systems' StuffIt—as many utilities and files you download off the Internet have been—the V.34 Plus standard's enhanced compression and error-correction protocols can't do their job. As a result, the 33.6 modem's transmission speed will drop down to 28.8 Kbps or even lower. And regardless of compression, the modem that you're communicating with must be capable of 33.6-Kbps speeds as well in order for your modem to achieve top speed.

• **If you already own a 28.8 modem, should you buy a 33.6 model?** In most cases, no. Unless your Internet service provider or online service has upgraded to 33.6

modem technology, you won't see much benefit when connecting to the Internet or going online. Also, some 28.8 modems, such as Diamond Multimedia Systems' SupraFaxModem 288 and Archtek America's SmartLink 2834A (<http://www.archtek.com>), incorporate flash ROM, which lets you bump up the modem to 33.6 with software upgrades.

From Phone Line to Finish Line

In our test results, which included scores for reliability and throughput, and an overall average (based on both reliability and throughput), the U.S. Robotics Sportster 28.8/33.6 Faxmodem tied for first place with the Diamond Multimedia SupraSonic 336V+ (see the benchmark, "Are 33.6-Kbps Modems Really Faster?"). The Sportster topped our charts with the best score for reliability, meaning it was able to transmit data at high speeds over impaired lines with minimal problems. Because reliability is the most important quality for a modem, the Sportster's top score in this area earned the modem the Editors' Choice.

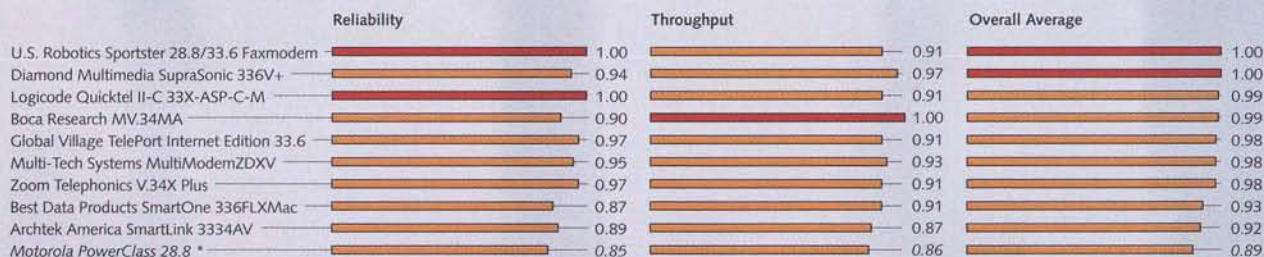
In throughput tests, Boca Research's MV.34MA (<http://www.bocaresearch.com>) was the clear winner. The slowest 33.6 modem, the SmartLink, was only marginally faster than the Motorola PowerClass



Are 33.6-Kbps Modems Really Faster?

We found that 33.6 modems perform better than 28.8 modems, but the differences are, in some cases, small. Of the 33.6 modems we tested, U.S. Robotics' was the most effective at navigating through impaired telephone lines. The Archtek SmartLink was only slightly more reliable than a 28.8 Motorola PowerClass. In terms of throughput, Boca Research's MV.34MA was the clear winner. The slowest 33.6 modem was only marginally better than the Motorola 28.8 model.

■ Best result in test. Longer bars are better. Products are indexed in comparison with the top performer in each category and listed in decreasing order of overall performance.



Tests how well modems handle impaired lines at high speeds while using compression and error correction.

Tests pairs of identical modems as they transfer files over ideal line conditions.

Averages results of reliability and throughput; scores indicate overall performance.

*A 28.8 modem, included for the sake of comparison.

Behind Our Tests

Macworld Lab used a Telecom Analysis Systems telecommunications-network simulator to evaluate modem performance. We ran all tests with pairs of identical modems attached to the network simulator. For reliability, we tested over numerous line conditions, representing 95 percent of all line conditions in the United States. We tested for throughput using five files of varied size and

compressibility; the results show how well each modem implements V.42bis compression. File types were a numbers-only vector graphics document; a WordPerfect text file; a portion of an executable file; output from a 64-bit random-number generator; and an archive containing several files of various types.—Macworld Lab testing supervised by Matt Clark

Fax-Modem Software:

THE SOFTWARE THAT SHIPS WITH A FAX MODEM IS ALMOST
AS IMPORTANT AS THE MODEM'S PERFORMANCE

Making a Judgment Call

HERE'S A LOOK AT THE SOFTWARE that ships with each of the nine 33.6 products we evaluated, along with STF Technologies' Faxstf, an off-the-shelf software package. These programs are arranged in descending order of our preference.

GlobalFax

Global Village's GlobalFax, which works only with the company's TelePort and PowerPort modems, is the most complete and powerful fax-modem program we tested. The new Setup Helper quickly guides you through installation and queries you for all relevant information, such as your name and fax number, which it preloads into its GlobalFax templates. The sophisticated, easy-to-use address book efficiently manages contact information, including e-mail and street addresses and billing account codes. You can easily fax documents from within any application by holding down the option key while selecting Print from the File menu. And unlike other packages, GlobalFax provides a graphical display that lets you follow the status of a connection from within any application. Along with GlobalFax, the TelePort Internet Edition 33.6 includes a helpful bundle of software and utilities for Internet surfing and e-mail, including Netscape Navigator.

Faxstf

If your work involves a lot of faxing, consider STF Technologies' Faxstf (company's estimated price, \$69; 816/220-0100, <http://www.stfinc.com>), a stand-alone fax-modem package that sup-

ports more than 400 modems. Faxstf offers features that aren't available in the other utilities we evaluated, among them fax forwarding, which sends received faxes automatically to other locations; password protection; call blocking; BinHexFax, which quickly converts faxes for transmission over the Internet; and FaxExchange, which translates faxes into image file formats such as PICT. The program sports a friendly interface and a helpful, clearly organized manual. Faxstf doesn't support voice mail (unlike Diamond Multimedia Systems' Faxcilitate voice module, which does support it), nor does it have the powerful address-book features of GlobalFax. Still, this is a robust fax-modem package at a reasonable price. (See *Reviews*, *Macworld*, October 1996, for a more extensive review.)

StartFaxing

Even though this is a whittled-down version of Faxstf, StartFaxing (included with Zoom's V.34X Plus modem) contains attractive features such as calling-card support and address-book searching that you won't find in its closest equivalent, MacComCenter. And it includes a host of useful global settings for sending and receiving faxes, including the ability to determine the number of rings before pickup; volume control; and send and receive speeds. StartFaxing falls short, though, with a limited number

of address-book fields and no drag-and-drop capability.

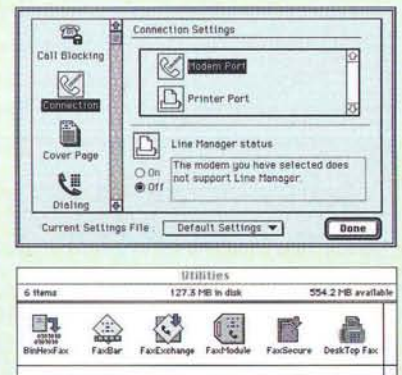
MacComCenter

Smith Micro Software's utility is certainly the most ubiquitous fax-modem program: it's included with six of the nine modems we tested, the exceptions being Global Village's TelePort Internet Edition 33.6, Zoom Telephonics' (<http://www.zoomtel.com>) Zoom V.34X Plus, and Diamond Multimedia Systems' SupraSonic 336V+.

That doesn't mean MacComCenter is the best program of its kind, however. The features it offers are useful but basic. MacComCenter maintains an archive for storing your faxes and a convenient log for tracking faxes sent and received, for example, and you can drag and drop a file onto the program's icon to send a fax quickly. The address-book features aren't nearly as sophisticated as those of Global Village's GlobalFax or Faxstf, though; you can't add details such as e-mail and postal addresses, for instance. If all you want is a simple, bare-bones fax-modem utility, MacComCenter should fit the bill, but those with more demanding needs are dialing the wrong number.

Logiccode's Quicktel II-C 33X-

ASP-C-M includes a special voice-capable version of MacComCenter. The voice features are more basic than those of Diamond's Faxcilitate (see below) but allow for setup of multiple voice-mailboxes, each with a separate greeting. A reply feature offers automatic callback for caller ID-capable modems, such as the Quicktel.



Fax to the Max For heavy fax use, check out STF Technologies' Faxstf off-the-shelf package, which provides advanced security features such as call blocking and password protection (top), along with BinHexFax (bottom) for converting faxes to send over the Internet.

Faxcilitate

This program, which ships with Diamond Multimedia's SupraSonic 336V+, combines voice and fax capabilities. Though not as intuitive as GlobalFax, Faxcilitate offers the power of broadcast faxes, customizable fax cover sheets, and international dialing options. The voice-mail module is cumbersome to set up, but making and answering calls is a cinch.

The Facts on Fax Modems

Company	Product	Star Rating *	List Price/Company's Estimated Price **	Phone	Warranty (in years)	Flash ROM Upgradable
Archtek America	SmartLink 3334AV	★★/4.5	\$209/\$170	818/912-9800	5	no
Best Data Products	SmartOne 336FLXMac	★/2.7	\$179/\$129	818/773-9600	5	no
Boca Research	MV.34MA	★★★/5.3	\$236/\$109	561/997-6227	5	no
Diamond Multimedia Systems	SupraSonic 336V+	★★★/6.7	NP/\$249	360/604-1400	5	yes
Global Village Communication	TelePort Internet Edition 33.6	★★★/6.5	NP/\$169	408/523-1000	5	yes
Logicode Technology	Quicktel II-C 33X-ASP-C-M	★★★/6.6	\$319/\$249	805/383-2500	lifetime	yes
Multi-Tech Systems	MultiModemZDXV	★★★/4.8	\$269/\$199	612/785-3500	10	no
EDITORS' CHOICE						
U.S. Robotics	Sportster 28.8/33.6 Faxmodem	★★★★/7.1	NP/\$179	847/676-7010	5	no
Zoom Telephonics	Zoom V.34X Plus	★★/4.9	\$199/\$139	617/423-1072	7	no

NP = Not provided. * Based on features, implementation, innovation, performance, reliability, ease of use, and value. (See Star Ratings section for full explanation.) ** Actual price could be higher or lower than the estimated street price provided by the company.

28.8, a 28.8 modem we included for comparison's sake (it was the top performer in our tests of 28.8 modems for the December 1995 article "Fast Fax Modems"). The SupraSonic 336V+ performed well in both tests—it even edged out the Sportster in our throughput trials. But with a company estimated price of \$249, it was one of the most expensive 33.6 modems we evaluated. If you're looking for a modem with telephony features, though, the SupraSonic 336V+ is a compelling choice (more on that later).

Logicode Technology's Quicktel II-C 33X-ASP-C-M (<http://www.logicode.com>) modem tied with the Sportster in reliability and throughput, but its street price is also \$70 higher than the Sportster's. Bringing up the rear were Best Data Products' SmartOne 336FLXMac (<http://www.bestdata.com>) and the Archtek America SmartLink 3334AV—both performed only slightly better than the PowerClass 28.8.

Bells and Whistles

Speed issues aside, a number of vendors have added extras to their 33.6 modems to keep them competitive. Among the added attractions: software for connecting to the Internet or online services (such as America Online); telephony capabilities that let you use your modem as a telephone and your Mac as an answering machine; caller ID, for identifying incoming calls; liquid crystal displays (LCDs) that provide more information about connection and transmission status than the traditional blinking lights; and flash ROM upgradability. Here's a quick look at the most noteworthy features.

• **Telephony** Of the modems we tested, the SupraSonic 336V+ had the most sophisticated set of telephony features.

The voice-mail module of the SupraSonic's Faxcilitate software is difficult to set up, but using the modem to make telephone calls, via the included earphone-and-microphone headset, is easy. The Logicode Quicktel, which features a built-in, two-way speakerphone, is a good second choice. But beware Archtek's SmartLink 3334AV and Multi-Tech Systems' MultiModemZDXV (<http://www.multitech.com>) if it's telephony features you seek: neither company currently provides the necessary Mac software to take advantage of its modem's telephony hardware.

• **LCDs and Caller ID** With its innovative hardware design, the Logicode Quicktel takes top honors in this category. The modem's LCD provides status information, connection rate, and caller ID. Best of all, the display can be adjusted up to 90 degrees for optimal viewing. The SupraSonic 336V+ offers the same features, but without an adjustable display.

• **Upgrades** It's a comforting feeling to know you can upgrade your modem to the next standardized speed available with the easy loading of a software module. If upgrading is important to you, the flash ROM features of the SupraSonic 336V+, the Logicode Quicktel, and the Global Village TelePort Internet Edition 33.6 (<http://www.globalvillage.com>) should make these modems easy to upgrade via software. By the time you read this, U.S. Robotics should be offering hardware upgrades to 56 Kbps for its Sportster modems; upgrade pricing wasn't set at press time.

The Last Word

Later this year, the first 56-Kbps modems will hit the market (prices were still being determined at press time), along with

cable-modem services. But if you need to get online now, your best bet is still a 33.6 modem. These models cost about the same as 28.8 modems did a few months ago; most are extremely easy to set up and use; and some offer compelling features such as telephony and caller ID.

With modems, though, the most important feature is always performance. In this regard, the U.S. Robotics Sportster tied with the SupraSonic 336V+, with Logicode's Quicktel just behind them. But when other factors were considered, namely its superior reliability and attention to detail, the Sportster earned the Editors' Choice. The Sportster ships with a Communications Control Language (CCL) script for running ARA (Apple Remote Access), all the necessary cables, and a five-year warranty. For \$179, the Sportster is our pick for connecting to the digital world. **m**

DEAN ANDREWS, the former usability manager of the PC World Test Center, writes frequently about Mac and PC products.

EDITORS' CHOICE

★★★★/7.1 Sportster 28.8/33.6 Faxmodem

The most reliable modem in our roundup is also upgradable to 56-Kbps technology and is attractively priced. **Company:** U.S. Robotics (847/676-7010, <http://www.usr.com>). **Company's estimated price:** \$179.

REAL PRODUCTS REAL RATINGS

Reviews you can trust Unlike other publications, *Macworld* rates only final shipping products, not prototypes. What we review is what you can actually buy.

Secrets

Control Strip Obedience School

HOW TO PUT THOSE DESKTOP CONTROLS IN THEIR PLACE

by Joseph Schorr

The Control Strip—that slender ribbon of tiles that pokes out furtively from the corner of your screen—is supposed to make your life easier by letting you adjust certain settings on your Mac without opening any control panels. (The Control Strip, you may recall, originally started out as an accessory for PowerBooks, but Apple decided the idea was good enough to include on all Macs, so it became a standard part of System 7.5.3.)

And yet, to be honest, the Control Strip hasn't endeared itself to everyone. When it's open, it always seems to be overlapping something you need, such as an Excel tool bar, or an icon you've dragged to the corner of your desktop. And even when it's collapsed, that distracting little gray nub clings to the corner of your screen like a barnacle. There's got to be a better way.

There is. Familiarize yourself with these tricks to massage the Control Strip into a system component that not only helps you get your work done, but doesn't get in your way.

Stripping It Down

Each tiny tile on the Control Strip corresponds to a module file stored in the Control Strip Modules folder in the System Folder. This means you can pare down the total length of your Control Strip by simply removing the module

files you don't really use from the Control Strip Modules folder. For example, if your Macintosh isn't connected to a multiple-scan monitor (or if you never change the resolution of your monitor), you can safely dispense with the Monitor Resolution module, which allows you to switch resolutions from the Control Strip. If you have only one printer connected to your network, you can remove the Printer Selector module that appears when you install Desktop Printing 2.0. The more judicious you are about what you include in the Control

Strip, the easier it will be to access the modules you actually use.

Control Strip Controls

You don't have to go through life with the Control Strip anchored to the lower-left corner of your screen. If it seems to get in your way there, you can move it up or down the side of your screen by option-dragging it. You can also option-drag the Control Strip clear across the screen, anchoring it to the right instead of the left. You can even drag the Control

continues



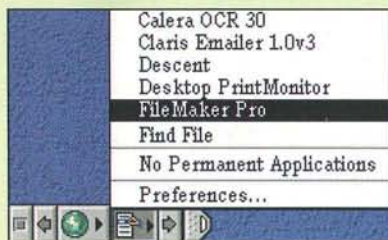
Teach Your Control Strip New Tricks

SYSTEM 7.5.5 COMES WITH A HALF-DOZEN STANDARD CONTROL STRIP MODULES TO HANDLE TASKS such as toggling File Sharing and adjusting your Mac's sound volume. But Apple designed the Control Strip to be easily expandable: you can add new functions simply by dropping new module files into the Control Strip Modules folder. There are dozens of such modules available via the Internet and through online services such as America Online (go to keyword *QuickFinder* and search for *Control Strip*). Here's a sampling of tools to manage your Control Strip, all available from Macworld Online (<http://www.macworld.com>) or America Online, keyword *Macworld*.



1

1 Calendar CSM (freeware, Young-Jin Kim) adds a pop-up monthly calendar to the Control Strip, with the current date displayed in bold. You may want to use ResEdit to change the holidays, which are set for South Korea—the settings are in STR# resource 257. (For more on using ResEdit, see *Quick Tips*, January 1997.)



2

2 BunchOApps (freeware, Patrick McClaughry) lists recently used applications for quick launching. The module also lets you list selected applications permanently, so you can create a Control Strip-based launching menu.



3

3 Control PPP (freeware, Richard Buckle) lets you connect or disconnect MacPPP and open the TCP/IP and ConfigPPP control panels. The icon on the Control Strip indicates whether your PPP connection is open or not. The module can also be set to display a timer showing how long you've been online.

Strip onto another monitor, if you have more than one monitor connected to your Macintosh.

And, of course, you can resize the Control Strip so that not all the modules are exposed at the same time. Drag the sizing tab at the end to reveal as much or as little of the Control Strip as you want. Clicking



Trimming Control Strip Fat The Control Strip becomes more useful if you install only the components you really use and resize it accordingly. For instance, take the Control Strip as it installs from System 7.5.3 (top) and remove the modules you don't use to get a compact Control Strip—like this two-module strip from which you can toggle AppleTalk on or off and change the bit depth of your monitor (bottom).

on the tab, on the other hand, collapses the whole thing, hiding all the modules and all that Control Strip clutter.

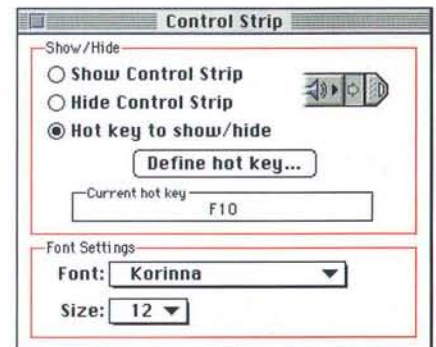
Best of all, you can change the order of the Control Strip components by option-dragging them into a new sequence. Combine this technique with careful resizing, and you can customize the Control Strip to show just those components you use, in exactly the order you want. If you want to use the Control Strip only to change your monitor's bit depth and to turn AppleTalk on and off, you can create a compact Control Strip that provides access to those two controls only (see "Trimming Control Strip Fat"). Say goodbye to resizing, scrolling, or searching for the right module in a long, cluttered strip of tools.

Hiding the Control Strip

If all this seems like too much trouble, or if you don't want the collapsed Control Strip tab peeking out from the side of your screen, you can set up a keyboard shortcut that allows you to make the Control Strip appear and disappear. This is particularly handy if you find yourself constantly having to collapse the Control Strip or drag it around because it is obstructing an icon or scroll bar (see "In Control").

To hook up a keyboard shortcut, open the Control Strip control panel, click on the Hot Key To Show/Hide radio button, then click on the Define Hot Key button and choose a key combination, which must include either the ⌘ key or a function key. Notice too that the Control Strip control panel lets you change the font used in control-panel menus, and gives you the option of *permanently* hiding the Control Strip. If you choose to permanently hide the Control Strip, you are better off removing it completely—or turning it off with Extensions Manager—reclaiming more RAM in the process.

After you've set up a hot key and closed the control panel, configure the Control Strip with all the modules you



In Control Use the Control Strip control panel to set up a show/hide hot key that completely removes the Control Strip from the screen.

want showing and drag the whole thing into a convenient location on screen. Then use your shortcut to hide it. From now on, to access any of those modules, press the keyboard shortcut you've defined, and the Control Strip will appear, uncollapsed and ready to use. After you've fiddled with the module you want, you can zap the strip back into oblivion, leaving you a clear, unobstructed screen once more. **m**

Contributing editor JOSEPH SCHORR is co-author of *Macworld Mac Secrets*, fourth edition (IDG Books Worldwide, 1997).

Tips, Tricks, and Shortcuts

by Lon Poole

What's your favorite way to put a PowerBook into sleep mode? Shane Rooks of Seattle once favored using the power key's Restart/Sleep/Shut Down alert box on his PowerBook 520 (if you're not familiar

with this technique, see "Power-Key Turnoff"). He never took to pulling down the Finder's Special menu, and he finds the Control Strip just plain inconvenient. But he discovered yet another means of achieving the same end. Control-clicking the menu-bar battery icon also puts the PowerBook to sleep. Of course, option-clicking the menu-bar clock toggles between date and time, and clicking the same area without pressing any keys alternately shows and hides the clock as well as the battery icon. Control-clicking puts the PowerBook in sleep mode only when the battery icon is visible.

If you're more of a keyboard person, you might prefer the method that Lloyd Kim of Westminster, South Carolina, discovered: press ⌘ -shift-0 (zero). On a desktop Mac that's capable of sleep, Ken Pence of Nashville found you can press ⌘ -option-power to make it sleep.

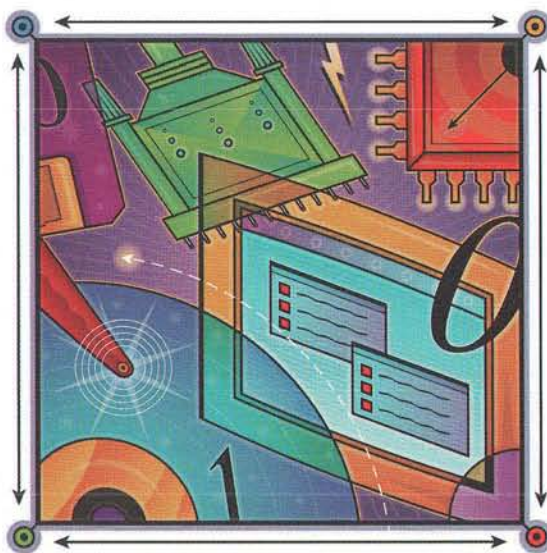
Desktop Picture

Q I want to import a funky picture into the Desktop Patterns control panel and have it displayed in its entirety, instead of in miniature 20 times. How can I do this?

JOHN VELLA
Boston, Massachusetts

A. Instead of a desktop pattern, you can display a desktop picture (see "Desktop Unbound") with Peirce Soft-

ware's DeskPicture (shareware, \$19.95; <http://www.peircesw.com>), or Décor by M. François Pottier (shareware, \$10). All products can completely replace the desktop pattern with a picture. DeskPicture and Décor also let you scale and crop a picture to fit the screen, and they can change the picture periodically. Only DeskPicture lets you adjust picture size and placement to create a montage of up to 16 pictures on one or more monitors. Décor requires a 68020 or better processor, whereas DeskPicture also works on 68000 systems.



Why stop with a still picture? Sundial from John Neil & Associates (415/905-3000, <http://www.jna.com>) replaces your desktop pattern with a 24-hour time-lapse QuickTime movie of a scenic viewpoint, synchronized to the actual sunrise and sunset at your location (see *Macworld's* "Holiday Gift Guide" in the January 1997 issue for a mini-review of the four-star Sundial). The product comes with ten California scenes, and the company plans to publish a way to make your own, although the photography required is not trivial.

Computer Speed

Q My wife and I are totally confused regarding the speed of various Macs. Apparently the processor doesn't give a total picture of the computer's ultimate speed. The review of the PowerBase series in the January 1997 issue states that the fastest PowerBase, the 240MHz model, is roughly equivalent in speed to a Power Mac 8500 with a 150MHz processor. What do these numbers relating to the speed of the chip really mean? We need a consistent measure of the computer performance that users will experience. For example, when Cray released its supercomputer, it measured speed in terms of floating-point operations per second to give a fair measure of its real speed.

KEN RYAN
La Mirada, California

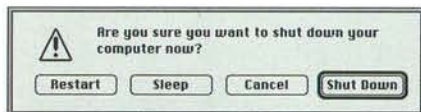
A. Processor speed measures how quickly the processor executes its instructions, but some processors can simultaneously execute more instructions than others. A PowerPC 604 processor, which the Power Mac 8500/150 uses, can simultaneously execute more instructions than a PowerPC 603e processor, which the PowerBase series uses. Furthermore, many other factors heavily affect overall system performance, including the amount of regular RAM and Level 2 cache RAM; hard drive performance; the Memory control panel's disk cache and virtual memory settings; the System version; and the particular system extensions and applications you use. Benchmark tests that measure floating-point operations

continues

per second or other raw performance don't always correlate to real-world experience using applications. That's why Macworld Lab measures performance with a consistent set of real application tasks. To compare the performance of various Mac OS computers, use the Core Mac Performance number in the *Mac Superguide* now in every issue of *Macworld*. You can also compare those numbers with the overall scores in individual product reviews and feature articles.

Efficient Browser Cache

TIP Several individuals have written to Mac magazines describing a method of storing a Web browser's cache files on a type of RAM disk—actually a disk image file—created by the program ShrinkWrap, which was formerly free-ware and is due by now to be a commercial product from Aladdin Systems (408/761-6200, <http://www.aladdinsys.com>). Everyone always says to put the disk image file into the Startup Items folder so that ShrinkWrap will mount the disk image as a RAM disk at start-up, making the cache files available then. This is all well and good if you go online directly after start-up, but is a terrible waste of memory if you do not. You can avoid the memory waste by using the Script Editor program included with System 7.5 to record an AppleScript program that mounts the disk image file and then opens Navigator. Save the AppleScript program as an application with a name like Navigator With RDC (RDC meaning RAM Disk Cache), selecting the Never Show Startup Screen option in the Save dialog box. In the Finder, copy and paste the Web browser's icon into the Get Info window of the script application.



Power-Key Turnoff You can turn off a computer that's using System 7.5.1 or later by pressing the power key on the keyboard, notes Jay Grant of Santa Barbara, California. Even a PowerBook whose keyboard lacks a power key (for example, one of the PowerBook 100 series) responds to the power key of an attached external keyboard. Pressing the keyboard power key brings up an alert that lets you choose to make the computer shut down, restart, or sleep (if it's capable of sleep).

Before creating the script application, you must open ShrinkWrap and create the Internet Cache disk image file, or you won't be able to save the script application successfully. Before running the script application for the first time, you must mount the disk image, open your Web browser, and change the location of its cache to the mounted disk image. Note that if you subsequently open the Web browser directly, without first mounting the disk image, the browser resets the cache to its default location and you have to set it back to the mounted disk image again.

ROLF BRAKVATNE

Fargo, North Dakota

For best results, the AppleScript program should set the ShrinkWrap preference for mounting disk image files as RAM disks. Instead of recording an AppleScript program, use Script Editor to enter and save the following as a script application.—L.P.

```
tell application "ShrinkWrap™"
    activate
    set RAM Disk of preferences to true
    mount alias "Macintosh HD:Internet
Cache" with unlocked
    quit
end tell
activate application "Netscape Navigator™
3.0"
```

Start-up Messages

TIP Do you like to have reminders at start-up, but don't want to use Stickies? Create a clipping file of your notes, and place an alias of it in the Startup Items folder. Rename it to be alphabetically last, so it opens after other start-up items. At start-up the Finder does not have to launch an application to display the note, which you can easily dismiss with ⌘-W. If you keep the clipping on your desktop, you will be able to view it anytime you want within seconds. You can use a start-up clipping in a lab setting, for example, where many people use a single Mac, to display general notes, updates, disclaimers, warnings, and so on.

To edit a clipping file directly (without dragging it to the Note Pad or some other application), get the shareware application and extension Finder Note.

STEVE DEMOTT

Darien, Connecticut



Desktop Unbound Replace your desktop pattern with a picture by installing DeskPicture or Décor.

Quick Bits

- If you felt the "Mac and Windows Networking" item was incomplete in January's *Quick Tips*, you weren't alone. We inadvertently omitted the following information from the end of the answer: You can directly connect two computers equipped with 10Base-T Ethernet ports by using a crossover cable; Global Computer Supplies (310/635-8144) carries them in 3-foot, 12-foot, and custom lengths for less than \$10. You can accommodate more computers and Ethernet-capable printers by plugging them into the port of an Ethernet hub. Prices start at around \$80 for a generic five-port hub and go up for more ports and a name brand. Another option: you can connect up to eight 10Base-T devices without a hub by using Farallon's EtherWave family of transceivers and adapter cards; prices range from \$90 to \$250 (510/814-5100, <http://www.farallon.com>).

- If you changed Netscape Navigator's six directory buttons as described in "Custom Netscape Buttons" (*Quick Tips*, January 1997), then you may be in for a little surprise. David Boike of Dike, Iowa, reports that in Navigator 2.02 the Directory menu no longer works correctly. Four items in Navigator 2.02's Directory menu take you to the new URLs you specified for Directory buttons. You can use ResEdit to fix the item names in the Directory menu and optionally change the other four menu items into special bookmarks. This problem doesn't affect Navigator 3.0X, since its Directory menu URLs are completely independent of its Directory buttons, but you can use ResEdit to repurpose all eight items in the Directory menu as special bookmarks. Alternatively, you can remove the Directory menu altogether from either version of Navigator. This is especially helpful

with old computers like Boike's Classic II, where the many Navigator menus crowd out the System menus at the right end of the menu bar.

To change Navigator 2.02's Directory menu, edit MENU resource 135. Rename menu items 2, 3, 6, and 7 to correspond to directory buttons 1, 2, 5, and 4, respectively. You can turn the rest of the Directory menu items to your use by renaming them, then making changes to the URLs in STR# resource 4000. Strings 1, 2, 3, 5, 6, 7, 8, and 9 correspond to the menu items (not including the separator line, which would be 4; you can't turn the separator line into a working menu item).

To repurpose Navigator 3.0X's Directory menu, edit the menu item names in MENU resource 135 and the URLs in STR# resource 4000, items 1, 2, 3, 5, 6, 7, 8, and 9.

To get rid of the Directory menu entirely, open MBAR resource 128, click the label 8) ***** to select it (a box appears around it), and then press delete. Save the changes, and that menu will never appear again.

• You don't have to use ResEdit to customize the directory buttons in Netscape Navigator. Mike Davis of Greenwood, Indiana, found two utilities that do the job with less fuss. Netscape Buttons by Scott Barnham (freeware) works with Navigator 3.0X and includes a patch that lets you open JPEG and GIF images by dragging them to the Navigator icon or window. Navigator Button Editor by Skylar Stein (shareware, \$5) doesn't have the drag-and-drop patch, but it works with Navigator 1.1N, 2.02, and 3.0X (although it doesn't fix the pesky Directory menu problems in Navigator 2.02 described above). **m**

LON POOLE answers readers' questions and selects reader-submitted tips for this monthly column. His latest book is *Macworld System 7.5 Bible*, third edition (IDG Books Worldwide, 1994).

Shareware mentioned in *Quick Tips* is available from Macworld Online (<http://www.macworld.com>) or America Online (keyword *Macworld*).

We pay from \$25 to \$100 for tips on how to use Macs, peripherals, or software. Send questions or tips to quicktips@macworld.com or Macworld Quick Tips, 501 Second St., San Francisco, CA 94107. All published submissions become the sole property of *Macworld*. Due to the high volume of mail received, we can't provide personal responses.

Windows and DOS Extensions

Puzzled by Windows and DOS file extensions (you know, the three characters after the period at the end of a file name)? Every day at work, people ask John Impalomeni of Albuquerque, New Mexico, to decode extensions, so he put together this list of the most popular types of files.

.bmp	Windows or OS/2 bitmap graphic
.cdr	CorelDraw document
.com	application program
.dbf	database file (various spreadsheet and database applications)
.doc	Microsoft Word document
.dot	Microsoft Word template (beware, this could be infected with a macro virus)
.eps	Encapsulated PostScript file
.exe	self-extracting Zip file or application
.gif	GIF graphic
.htm or .html	Web page
.il5	Adobe Illustrator document (the number is the application version)
.jpg	JPEG compressed graphic
.pct	PICT graphic
.pcx	PC Paintbrush graphic
.pdf	Adobe Acrobat document
.pm6	Adobe PageMaker 6 (the number is the application version)
.ppt	Microsoft PowerPoint document
.prn or .ps	PostScript files
.psd	Adobe Photoshop document
.pt6	Adobe PageMaker 6 template file (the number is the application version)
.pub	Microsoft Publisher document
.qxp	QuarkXPress document
.rtf	Rich Text Format word processing document (open in a word processor or place file in PageMaker)
.sam	AmiPro document
.tbl	Adobe table editor
.tif	TIFF graphic
.txt	plain text
.wk1	Lotus 1-2-3 spreadsheet (the number is the application version)
.wks	Microsoft Works document
.wmf	Windows Metafile graphic
.wpd	Corel WordPerfect document (version 6.1 and higher)
.wpg	Corel WordPerfect graphic
.wq1	Quattro Pro spreadsheet (the number is the application version)
.wri	Microsoft Write document
.ws2	WordStar document (the number is the application version)
.xls	Microsoft Excel spreadsheet
.zip	compressed file (PKZip format)

© PointCast, Incorporated. All rights reserved.
PointCast and the PointCast logo are trademarks of PointCast, Inc. All other names and trademarks are property of their respective owners.

While you're sitting there, something is happening in the world. It's called "the news." With PointCast, the Internet news network, you can get it broadcast straight to your desktop; weather updates, world news, sports, stocks, industry news and more. And suddenly your computer screen is transformed into a dynamic, multi-colored newswire complete with flying headlines, vibrant graphics and scrolling stock ticker. The PointCast Network is completely customizable so you can get exactly the news you want. CNET awarded it the "Best Internet Application of 1996" and *The Wall Street Journal* gives PointCast "must-have" status for in-the-know computer owners." Download the Macintosh version free at www.pointcast.com.

Your live [news] feed from the world

Have you seen it?
**free
download**

[www.pointcast.com]

PointCast™ Your desktop newscast.



Of Death and Taxes, the Lesser Evil

by Charles Seiter

Some two centuries after Benjamin Franklin uttered his famous observation about death and taxes, the gloomy truth of it prevails. On the

Web, a search on the index site infoseek (<http://www.infoseek.com>) pops up nearly half a million references to each, although death appropriately holds a slight edge. If both are inevitable, you may as well prepare yourself. Setting death aside for the moment, let us bravely face taxes.

All the tax information you could possibly want is available on the Net (including the standard admonishment that you should have looked it all up and started your tax planning back in January of *last* year). From e-mail addresses of individual CPA tax specialists in Ketchum, Idaho, to all the Internal Revenue Service tax forms—it's out there on the Web.

The Feds

One good place to gather your tax info carries the ominously Orwellian name of FedWorld. This site, at <http://www.fedworld.gov>, branches to all linked government activities. Scroll down the page to FedWorld-Hosted Web Sites and pick Internal Revenue Service (<http://www.irs.ustreas.gov>), which includes links to

both the IRS advice site and tax FAQs. This is also the source for downloadable tax forms coded in Adobe Acrobat Reader PDF or PostScript format (http://www.irs.ustreas.gov/plain/forms_pubs/forms.html). Please note: use a laser printer if you plan to mail in these downloaded forms.

Now, here's a pleasant surprise: the IRS site is easy to use, friendly, and shockingly

areas of forms and advice for businesses and individual tax filers. Even if you don't file electronically (businesses typically don't), it's useful to take a look at the forms so you understand your deductions and expenses.

The Easy Way In: AOL

If you don't feel like surfing around to collect your own tax database, America On-

area for Kiplinger's TaxCut and an information stand staffed by the National Association of Enrolled Agents (accountants and others specially credentialed for IRS work) round out the AOL package.

Commercial Tax Software

The Mac now has only two full-scale personal income tax packages: Intuit's MacInTax and Kiplinger's TaxCut. You can order these products directly from the companies' Web sites—<http://www.intuit.com> and <http://www.conductor.com>—with next-day Fed Ex delivery if you've been dawdling. Even if you're not using their products but just scribbling your numbers into forms you found at the post office, you can take advantage of the nicely organized piles of good advice Kiplinger and Intuit have thoughtfully posted free for all takers. You have to look around a bit to find MacInTax—the Intuit site billboards its Windows product, TurboTax. Go to the Quicken Store page option for information on MacInTax. That's also where you order state tax forms.

Filing Your Forms

Electronic filing is not as straightforward as you might hope. You can't simply download forms, fill them in, and e-mail them back to the IRS site—not this year, anyway. This is mainly because the IRS has to take certain pre-



hip, and has an excellent scrolling index. And though you might be skeptical of tax tips from the Internal Revenue Service, thinking they're unlikely to favor you, the advice is in fact quite neutral. The same recommendations appear on other sites that bill themselves as taking the taxpayer's side aggressively.

The IRS site has separate

line's Tax Planning forum in the Personal Finance area has already done a good basic job for you. It has all the IRS forms along with the appropriate reader software. For tips and advice, AOL offers Ernst & Young's best-selling Tax Guide online, plus a help service called TaxLogic with exceptionally clear explanations of the tax laws. A support

Expert Advisers

Tax services, columnists, law firms, and others have posted tax advice and explanations of IRS rulings. In general, these postings offer more useful information, in a more concentrated form, than the two Usenet

newsgroups *misc.taxes* and *misc.taxes (moderated)*, which sometimes feature long threads about arcane issues. The tax CPAs I recruited to review help found the following sites particularly impressive.

- <http://www.scubed.com/tax/tax.html> offers the helpful and amusing journal (well, amusing for a tax journal) *Taxing Times* 1997, as well as easy-to-understand answers to common questions.
- <http://www.handrblock.com> is the advice site for tax giant H&R Block. One of the consequences of the company's investment in CompuServe was this first-rate Web site.
- <http://www.dowjones.com/smart> gives the contents of the *Wall Street Journal's* monthly magazine *Smart Money*. At the end of the year, and of course in the glorious springtime, this publication features excellent tax tips.
- <http://www.amgnet.com/taxtips1.htm> is a page of to-the-point tips from the Chicago law firm Altschuler, Melvoin and Glasser.
- <http://www.ey.com/us/tax/> is the home of the tax section of the giant international accounting firm Ernst & Young. A standout resource is the "25 Most Common Tax Preparation Errors" list; send me an e-mail if you've never made one of these mistakes!
- <http://www.taxprophet.com> catalogs the Tax Prophet, a *San Francisco Examiner* column. For your further edification, the Prophet has links to the Web's other tax resources, at <http://www.taxprophet.com/surfing/surfing.html>.

Shareware PICKS

THERE REALLY IS NO SHAREWARE equivalent of MacinTax or TaxCut (I guess few people write tax programs for sheer amusement), but there are plenty of programs to help you with one of the more onerous tax-related tasks, documenting deductions. The more proof you have of your expenses, the better your prospects of getting along comfortably with the IRS. It won't help your 1996 return much to download these tax forms today, but you may as well start looking ahead. You can get them from the Info-Mac archives or from <http://www.shareware.com>.

When you're considering deductible business expenses, don't overlook your Mac. You can deduct the cost associated with the use of your Mac for your own (not your employer's) business, but you need records to prove what you're using your Mac for. So get a copy of **Logger 1.0.1**. This \$20 shareware program by Eric Preston keeps track of how much time you spend at your Mac and for what purpose, in a way that follows IRS accounting guidelines.

Another worthwhile shareware program is **home-office-invoice** (Chris Moody; \$2). In addition to giving you a variety of forms for billing for services you provide from your home office, it has forms for logging auto-related deductions (notably mileage at 30 cents a mile, for this year) and for keeping track of home-office expenses in formats the IRS accepts.

Finally, if you're serious about running a home-based business and doing the tax part right, look into **NetBooks 2.6.2**, a complete shareware (\$49) accounting package from Symmetry Software that includes links to tax tables. This program will tell you whether you're running a real business or just a hobby that's meant to justify buying a new printer every two years.

cautions to make sure the data coming down the wire is actually coming from you.

MacInTax and TaxCut both come with an automatic dial-up routine to an IRS-certified filing site. You can also file through America Online's filing service if you've downloaded your forms directly from the IRS. All of these services provide you with a password or registration number that gives the IRS the guarantee it needs.

It's not yet clear whether the IRS will have implemented electronic filing for the rest of us by April 15, 1997. Last year's procedure was to mail your disk-based return—that's right, via snail mail—to an approved electronic filing center, which then transmitted it to the IRS. The Feds fully realize there has to be a better way, but you'll have to check <http://www.irs.ustreas.gov> to see what they finally decide to do.

Bottom Lines

It's great to have access to all this tax information, but remember, if you're called in for an IRS audit, the Web—friendly and helpful as it is—won't hold your hand, or stand up for you in court. If your taxes are at all compli-

cated, a live human tax professional is well worth considering. After all, just think how good you would be if, heaven forbid, it were your job to prepare a few thousand returns for other people.

On the other hand, if your taxes are simple and straightforward—the W2 standard-deduction type—the IRS site offers TeleFile, an extremely simple system that lets you file using a touch-tone phone.

One last point: if you think the lines at the post office on April 15 are bad, think what the electronic queues at these Web sites will be like. Start early on filing your taxes electronically. **m**

CHARLES SEITER has written a number of books for IDG on Web matters, and consults for Bay Area companies on Web searching.

REACHING MACWORLD ONLINE

America Online: Keyword *Macworld*

World Wide Web:
<http://www.macworld.com>

Keep in touch with what's new on the Web site with Express, our free biweekly e-mail newsletter. Subscribe at <http://www.macworld.com/newsletters>.

Media

When CD-ROMs Meet the Web

OPTIONS FOR COMBINING THE BEST OF BOTH WORLDS

by Jim Heid

Although the World Wide Web gets most of the ink these days, the lowly CD-ROM is far from dead. In fact, the Web has injected new life into the silver platter—which, unlike the Web, has been getting steadily faster over the past few years. CD-ROMs and Web sites can work together, and it's becoming common to find them doing just that. Each medium has unique strengths that help compensate for the weaknesses of its partner. A CD puts nearly 700MB of data in a relatively fast storage medium, but that data is frozen and can't be updated. A Web site offers up-to-the-moment timeliness but can't deliver huge amounts of data quickly. This month, I spotlight the ways CD-ROMs and Web sites can work together. For more information, visit <http://www.heidsite.com>.

CD-ROMs Accessing Web Sites

The most popular method of CD-ROM and Web integration involves creating a companion Web site for a CD-ROM title, a place where the CD's users can download updates, read current information, and interact on discussion boards. There are several ways to unite the CD and the site.

Downloadable Updates The easiest method involves putting information that changes often—say, the latest additions to a stamp collector's catalog—on a



Web site where people can download it.

Design your CD project so that it sets up a folder on the user's local hard drive and works with data stored in that folder. (This approach also boosts a project's performance.) Then instruct users to download the latest data from your Web site and store it in that folder—better yet, if you are familiar with the black art of writing software-installation routines, create an installer that retrieves and stores the updates. They're automatically available the next time the CD launches.

Active Data Windows A more advanced approach is to integrate Web-site data directly into a CD title: to include a current weather-satellite image in a meteorology CD, to put current standings and player statistics into a sports title, or to have a current-events calendar within a travel title.

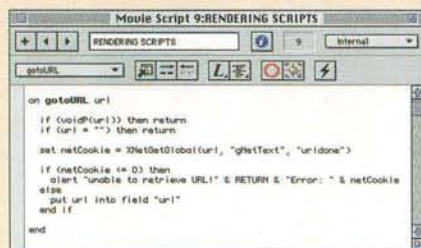
These kinds of applications require an Internet-savvy authoring program. Now, don't confuse *Internet-savvy* apps with plug-ins such as Macromedia's *continues*

CD-ROM, Meet the Web . . . Web, Meet the CD-ROM

THE MOST SOPHISTICATED way to marry CD-ROMs and the Internet is to integrate elements from a Web or FTP site directly into a CD-ROM title. But a CD can also be a vehicle for delivering high-bandwidth data—high-res graphics, sound, movies—and your Web site can tap this material to avoid download delays. In the hypothetical union shown here, the CD title joins current exhibit dates, downloaded from the Web, with images of paintings, located on the CD. The same CD-ROM-based photos dress up an art museum's Web site for visitors who also own the CD.

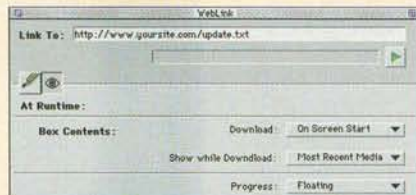
ACTIVE DATA WINDOW

The XtraNet add-on for Macromedia Director provides a full complement of connectivity options. The script segment at right is part of a Lingo script that retrieves a URL. XtraNet's power goes well beyond this simple example; you can also use it to create multiuser games, client-server applications, and custom Web browsers. But only experienced Lingo programmers need apply.



DOWNLOADABLE UPDATE

The WebLink plug-in included with Pitan-go's ClickWorks makes simple Web integration a cinch. Here, WebLink is being configured to retrieve and display the contents of a text file automatically each time this screen opens.



CD-ROM Title



Active Data Window
Creates a live link to a URL.



Downloadable Update
Displays text downloaded from the Web to a specific folder on the hard drive.

Shockwave, which lets you compress Macromedia Director projects and run them within a browser. By itself, Shockwave has nothing to do with CD-and-Web integration (at least not yet). In this context, Internet-savvy means that the authoring program can make its own connections using common Internet protocols, such as File Transfer Protocol (FTP) and HyperText Transfer Protocol (HTTP). By taking advantage of this ability to connect, you build communications features directly into your project, enabling it to communicate with a server, or in the case of Internet-based multi-

user games, with other copies of your project running throughout the world.

Several authoring programs are now Internet-savvy, thanks in part to third-party developers. If you use Director, you can add connectivity to your projects using Human Code's \$399 XtraNet (published by g/matter, 415/243-0394, <http://www.gmatter.com>), a Director Xtra (plug-in) that adds more than 20 commands to Director's Lingo language.

XtraNet teaches Director about the Net by extending the Lingo language. Using XtraNet's high-level support for HTTP and FTP, you can perform rela-

tively simple Web-integration tasks—such as downloading and displaying an image or text file from a Web or FTP site—with just a few Lingo commands.

XtraNet also provides low-level TCP/IP support, enabling you to develop custom protocols for *peer-to-peer* projects. A peer-to-peer project doesn't access a server to download files. Instead, it lets multiple copies of a project interact across the Internet or an intranet. Examples include multiuser network games, on-screen whiteboards, and workgroup-collaboration applications.

You say you don't use Director? Alle-

Web Sites Living on CD-ROMs

CD-ROMS ARE AN ideal medium for distributing Web sites to people who don't have an Internet connection. Put your company's Web site on a CD and distribute it at a trade show. Or if you've spent time converting company manuals to HTML for an intranet site, zap them onto a CD and send it to your field offices.

Recipients can use their own Web browsers, to explore your

content, or you can license a browser and include it on the CD. Microsoft offers a terrific free licensing program for Internet Explorer; see <http://www.microsoft.com/ie/ieak/>.

Creating a Web site that runs entirely from a CD-ROM isn't too different from creating an ordinary site. But you need to follow a few rules. Here are some tips for creating a Web site that can run from a

local CD or from a Web server.

- Use relative rather than absolute URLs. Don't include a fully qualified domain name in links and file references; use relative references. For example, to refer to a graphic stored in a folder named Images, use ``, not ``.

- Use client-side image maps. Server-side image maps don't work

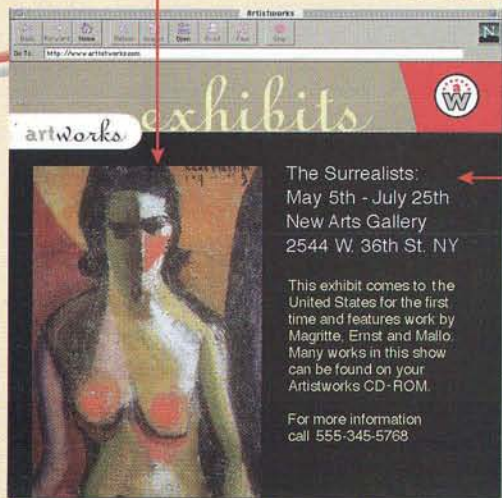
when there isn't any server, so be sure all your image maps have client-side support. For details on client-side image maps, see *Media*, August 1996.

- Omit pages that rely on Common Gateway Interfaces. If parts of the site rely on CGIs for processing—for example, a search page, a guest book, a shopping cart—omit those portions from the CD-ROM, where CGIs don't work.



Local CD-ROM Drive
Provides a speedy source
for high-bandwidth data.

Web Site



LOCAL CD-ROM CONTENT

In a multiplatform world, calling up content from a CD-ROM is tricky because of differences in how you refer to CD-ROM drives. The HTML excerpt shown here relies on JavaScript to determine whether the user is running the Windows 95 or Mac version of Netscape Navigator, and then to execute the appropriate movie-embedding command.

```
<SCRIPT language="JavaScript">
```

```
<!--Navigator for Windows code -->
```

```
if (navigator.appVersion.indexOf("Win95") !=-1) {  
    document.write('<embed src="file:///D:/movies/ocean  
.mov" height=264 width=320 autoplay=true>')  
}
```

```
<!-- Navigator for Mac OS code -->
```

```
else {if (navigator.appVersion.indexOf("Macintosh") !=-1) {  
    document.write('<embed src="file:///My%20Hot%20Title /  
movies/ocean.mov" height=264 width=320 autoplay=true>')  
}
```

```
<!-- This is some other version; display an error message -->  
else {document.write("Sorry, this feature works only on the  
Mac OS and Windows 95 platforms.")  
}
```

```
</SCRIPT>
```

A.

This Windows 95 code assumes that a user's CD-ROM drive is mapped to drive d:, which may not be the case. It takes more advanced programming to determine which drive letter to use on a specific system.

B.

On the Mac OS, no clunky drive letter is necessary: you can simply refer to the CD-ROM by name. But if the CD's name contains spaces, you must indicate them using the %20 code as shown here.

giant Technologies' (619/587-0500, <http://www.allegiant.com>) SuperCard 3.0 (\$329 estimated street price) provides outstanding Web support through Allegiant's Roadster browser plug-in, which enables cross-platform playback of SuperCard projects. SuperCard's full support for user interface controls, its powerful SuperTalk scripting language, and its ability to play QuickTime movies and audio files make it a formidable development tool for the Web and for Web-CD hybrids. Allegiant also sells Marionet (\$219 estimated street price), an external command (XCMD) that lets programs that support XCMDs (SuperCard, Apple's HyperCard, and Director) interact with the Internet. Marionet even lets you add Internet access to AppleScript-savvy productivity programs, such as Claris FileMaker Pro and Microsoft Excel.

The tools described so far require you to write small programs, or scripts, to add Internet access. If you're not the scripting type, consider using Pitango's (617/229-5809, <http://www.pitango.com>) \$985 ClickWorks (see *Reviews*, *Macworld*, February 1997). This relative newcomer to the authoring scene provides a no-

scripting interface for Web content. ClickWorks' WebLink feature can't handle advanced tasks such as multiuser games, but it's ideal for displaying Web-based images or text files.

Web Sites Accessing a CD-ROM

Turn the CD-Web picture around, and you have another way to combine the two: a Web site that accesses a CD-ROM containing movies, audio, high-resolution graphics—or even good old text.

With this scheme, the Web site provides the user interface and navigation elements, and the CD acts as fast, local storage for data that would otherwise download slowly. This scheme even provides a weird form of copy protection for a Web site: if you store key portions of the site, such as graphics for navigation buttons, on a local CD, only people who have the CD will be able to fully use the Web site.

HTML mavens know that you can refer to a local file by using a file URL, as in `file:///drivename/foldername/filename.html`. With some planning and a bit of effort, file URLs can refer to files stored on a CD-ROM.

But there's a catch: when a user clicks on a link for a CD-based item, the Web browser copies the item from the CD to the browser's cache, losing some of the performance advantage of local storage. The larger the file, the longer the delay. With QuickTime movies, you can minimize the delay by using the QuickTime plug-in's fast-start feature, which lets movies begin playing as they download. Movies created with QuickTime 2.5 are automatically fast-start encoded. You can use Apple's free Internet Movie Tool (available at <http://quicktime.apple.com/sw/sw.html>) to convert movies created in earlier versions.

The links between CD-ROMs and the Internet are still being forged. As authoring tools get smarter about the Internet and Web browsers get smarter about CDs, combining the best of both worlds will get easier. Now's the time to start experimenting. **m**

Next month: Adobe After Effects Secrets

JIM HEID's latest book is *HTML & Web Publishing Secrets* (IDG Books Worldwide, 1997), a collection of tips for Web developers.

Publishing Workshop

PageMaker Tips and Tricks

by Olav Martin Kvern

Upgrades. It seems to me that I receive an upgrade notice in the mail right around the time I've finished installing the current version of a program. As

soon as you really know a particular feature or program, your knowledge becomes obsolete. Having written an entire book about Adobe PageMaker 6.0 that I couldn't get published before PageMaker 6.5 was to appear, I may feel the pain of this process more acutely than most.

The best antidote to the pain of upgrades is having a good supply of timesaving tricks—the more you know, the more likely it is that a large percentage of them will survive the upgrade process.

Here are several of the best tricks I know for PageMaker—most of them work in both PageMaker 6.0 and will work in 6.5 (when it's available). Think of this column as a free upgrade.

The Basics

Some PageMaker shortcuts seem so well known that tips sessions fail to cover them. Let's review the basics.

- To scroll without touching the scroll bars, hold down the option key as you drag any tool.

- Press ⌘-spacebar to change to the magnifying-

glass tool, then click-drag the tool to select the area you want to zoom to.

- Hold down ⌘ and tap the spacebar to switch from any tool to the pointer. Hold down ⌘ and tap the spacebar again to switch back. Note that this

shortcut also deselects any selected object.

- To cancel a Place operation, click the loaded Place icon on any of the tools in the Toolbox.

- To select one object from a set of grouped objects, ⌘-

click on the object. You can move or format the object without removing it from the group. If you want to edit or format text, it's even easier—just click on the text with the text tool.

Now check out these more advanced shortcuts.

Closing Dialog Boxes Quickly

To close a series of nested dialog boxes, hold down the option key and click on the OK button (or press option-return). PageMaker closes all the dialog boxes and applies your changes. If you don't want to apply the changes, hold down the option key and click on the Cancel button (or press option-escape).

Rotating around an Object's Center

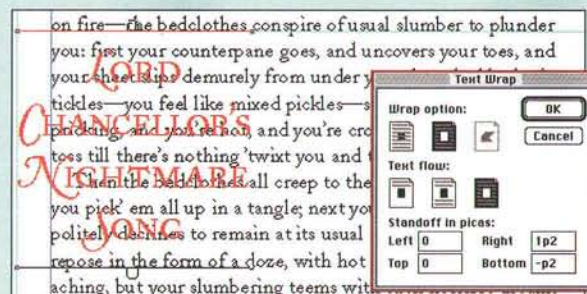
To rotate an object around its geometric center point, you simply hold down the ⌘ key as you drag the rotation tool. If you don't, rotation centers on the point at which you started dragging.

Selecting through Stacks of Objects

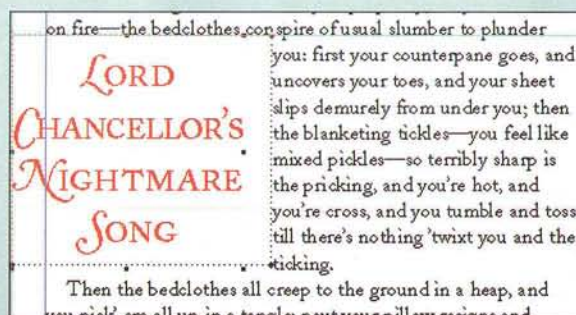
To select an object that's behind another object, hold down the ⌘ key and click on the stack of objects. The first click selects the top object; a second click selects the next object down. Keep on ⌘-clicking through the stack and you eventually cycle back to the topmost object.

Wrapping Text around Text Blocks

EVER WANT TO WRAP TEXT around a text block—say, to create pull quotes for a newsletter? In PageMaker 6.5, of course, you can put text inside a text frame, then apply a text wrap to the text frame—but there's an easier way that works in both versions.



1. Select the text block and press ⌘-G to group it (yes, you're grouping a single object). Choose Text Wrap from the Element menu. Set up the wrap.



2. The text now wraps around a rectangle containing the group, turning that text into a pull quote.

Exporting Graphics

Extending Undo

If you've used PageMaker for long, you've probably noticed that its undo feature isn't particularly robust. In fact, some actions—applying a font change, for example—can't be undone *at all*. If you're tired of seeing Cannot Undo in the Edit menu, you can use PageMaker's minisave feature (which performs a quick save every time you turn a page or paste) to take quick snapshots of your work.

1. From the Windows menu, choose Scripts to display the Scripts palette.

2. Choose New Script from the pop-up menu.

3. Enter a name for your script and press return or click on OK. PageMaker displays the script-editor dialog box.

4. Enter **minisave**. In PageMaker 6.5 you can press the enter key to close the script-editor window. Don't do this in 6.0; pressing Enter places an invisible character in your script that may cause an error.

5. Create another new script and enter **revert mini-**

IT'S ALWAYS BEEN EASY to get graphics into a PageMaker publication. Getting them *out* again is another matter. Ever receive a PageMaker file containing images (TIFFs, mostly) to edit, only to find that you don't have the original image files? In PageMaker 6.5, you can export graphics in TIFF, JPEG, GIF, and DCS formats.

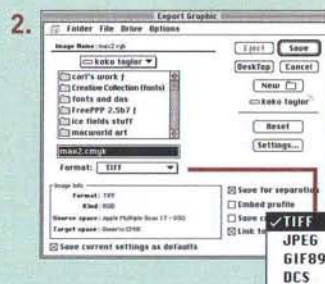
When might you use this feature? If you've received a catalog publication full of RGB TIFF images, for example, you can export the images as pre-separated DCS files, using PageMaker's excellent color-management system to create the separations—and you can then specify that each DCS replace the original RGB TIFF. On the other hand, if someone has given you a publication full of images that have been cropped, you can reduce the file size by exporting only the visible area of the cropped images.

Select the graphic, then choose Graphic from the Export submenu of the File menu (1). PageMaker brings up the Export Graphic dialog box. Choose a format from the pop-up menu (2). To set export options for a graphic, click on the Settings button.

PageMaker displays a dialog box containing

options relevant to the file type you selected.

Note that the DCS format is available only if you've specified a source profile for the image using PageMaker's color-management system.



saved. Close the script editor.

The scripts now appear in the Scripts palette. Double-click on your first script to take a snapshot. Double-click on your second script to revert to the most recent

snapshot of your publication.

But remember: if you change pages or paste an object into your publication, you are changing your snapshot, and the Revert to Snapshot command takes

you back to that point. **m**

Designer, illustrator, and software developer OLAV MARTIN KVERN is coauthor of *Real World PageMaker 6.5*, soon to be published by Peachpit Press.

FIXING KEYBOARD SHORTCUTS

WHICH KEYBOARD SHORTCUT do you use most often in PageMaker? For most of us, it's the one for Fit in Window, because we navigate by quickly zooming in and out. In the old days, PageMaker used \mathbb{W} , a shortcut that's easy to press with one hand. Unfortunately, \mathbb{W} became the Mac standard for Close Window. To "fix" this problem, Adobe chose $\mathbb{0}$ (zero) for Fit in Window—an awkward shortcut that can be a stretch for one hand. You can use ResEdit to make \mathbb{W} work the way you want it to (in both PageMaker 6.0 and 6.5).

1. Start ResEdit and open a copy of the resource file named PM6.5 RSRC (PM6.0 RSRC in ver-

sion 6.0). You'll find these files in your PageMaker folder. (Working on a copy means you can always go back to the original if you make a mistake.)

2. Find and open the MENT resource class.

3. Delete the resources ID 2 and ID 9 (ID 63 in version 6.0).

4. Open the MENU resource class. Double-click on the resource defining the File menu (ID number 2). Select the menu item named Close.

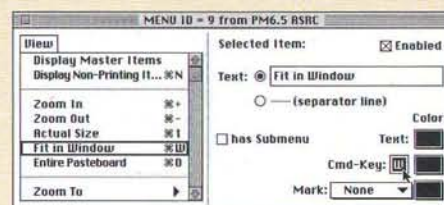
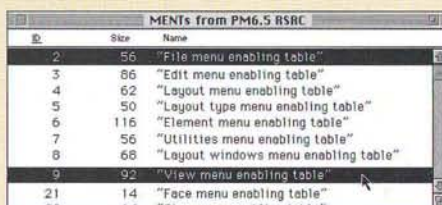
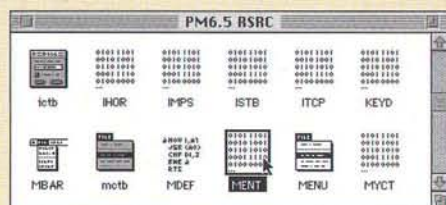
5. Enter a new keyboard shortcut for the Close

command in the Cmd-Key field (or delete the existing shortcut). Close the resource.

6. Open the MENU resource defining the View Menu ID (ID 9 in version 6.5, ID 63 in 6.0). Select the Fit in Window menu item. Enter **W** in the Cmd-Key field.

7. Save the resource file.

The next time you open PageMaker, pressing \mathbb{W} zooms you to the Fit in Window view—just like it used to. In addition, pressing \mathbb{W} in the Story Editor will close the Story Editor window (just like it used to).



To "fix" \mathbb{W} , open the MENT resources.

You must completely remove two MENT resources.

Finally, you reassign the Fit in Window command.

Graphics Workshop

Special Effects with Live Picture's Distort Brush

by Cathy Abes

ARTIST San Francisco photographer John Lund's digitally manipulated photographs have appeared in such publications as *Pro-*

fessional Photographer, *Computer Artist*, and *Design Graphics*. Examples of his work can be viewed on his Web site, <http://www.teamdigital.com>.

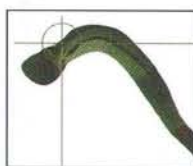
HOW IT WAS DONE Known for producing such fanciful imagery as flying pigs, Lund used Live Picture to fashion a photo-realistic dragon from photos of an iguana. Live Picture's Distort brush made it easy to accomplish what would otherwise have been a daunting task: to subtly alter the shape and perspective of various parts of the photo to produce an entirely different photographic image that doesn't look digitally manipulated. To transform the iguana into a dragon, he used the Distort brush to stretch and skew a copy of the iguana's tail, which then became the elongated neck and shoulders of the dragon. The spines on the iguana's back did double duty: Lund resized and reshaped them—first to add spines along the dragon's neck and then to make several rows of sharp teeth.

As he worked, Lund varied the size of the Distort brush, depending on the size of the area he was manipulating and the coarseness or fineness of the detail he was editing.

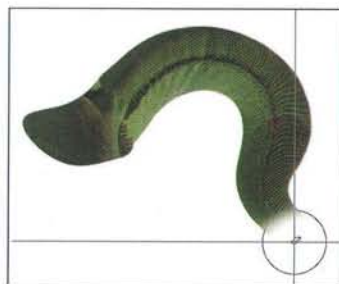
TOOLS Hardware: Grande Vitesse—configured DayStar Genesis MP with 200MB of RAM, two fast SCSI cards, and an internal 8GB array; Grande Vitesse docking bay with built-in 200MB SyQuest drive plus three removable hard drive ports; Magnavox 21BA 21-inch color monitor; ScanView Scan-Mate 5000 drum scanner. **Software:** Live Picture 2.5. **m**



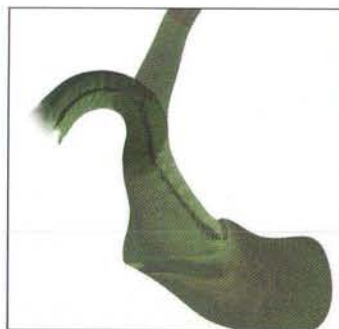
1 To begin building the neck, Lund created an image-distortion layer into which he inserted a section of the iguana's tail.



2 Using the Distort brush's freehand tool at a reduced sensitivity setting of 30 percent enabled him to subtly push the neck into the shape he wanted.



3 Being careful not to overuse the Distort brush, which could cause the image to break up and lose detail, Lund continued shaping the dragon's neck by erasing the extraneous portions of the distorted tail section.

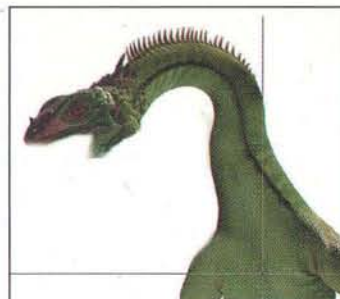


4 To build the lower neck and upper shoulder, he inserted a copy of the original tail section and superimposed it over the already distorted tail at 80 percent opacity, so he could more easily align it with the tail section underneath.

8 Again with the Distort brush, he reshaped and flattened the top of the iguana's head to begin transforming it into a dragon's head.



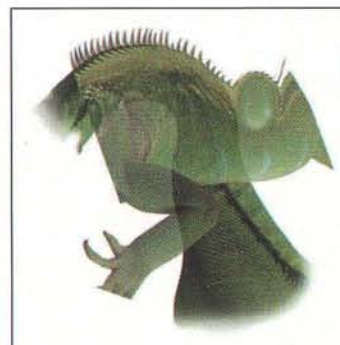
7 Lund next inserted a photo of the iguana's head into another distort layer, resizing and positioning it to blend with the top of the neck.



5 Lund inserted a photo of the iguana's back and spines in another distort layer at 80 percent opacity, then resized and positioned it over the previously distorted neck.



6 After pushing the spines into position along the edge of the neck, he erased the entire back area, leaving only the spines.





It's about business-to-business,
home-to-office, artist-to-client,
teacher-to-child.

It's about having the knowledge
and the know-how to be the best.

It's about making smart choices
today and learning about what
you need for tomorrow.

It's MACWORLD Expo.

See the best in Macintosh and
complimentary tools and technologies.
Explore an exhibit floor with everything
you've ever wondered about... the
internet, networking, databases, education,
desktop applications, music, design,
publishing, illustration, animation,
CAD/CAM, programming, entertainment
and multimedia. With a complete
conference program featuring over 80
sessions, this is your opportunity
to interact with leading experts in the
industry and get the knowledge and
solutions you've been seeking.

MACWORLD Expo/Boston

MACWORLD Expo/San Francisco

See us on the WWW at:
<http://www.mha.com/macworldexpo>

For more information call
800-645-EXPO x102

Please send me more information on MACWORLD Expo!

☐ **Boston** ☐ **San Francisco**

I am interested in: ☐ Exhibiting ☐ Attending

MW

Name _____

Title _____

Company _____

Address _____

City/State/Zip _____

Phone _____ Fax _____

e-Mail _____

Mail to: MHA Event Management, 1400 Providence Hwy., P.O. Box 9103
Norwood MA 02062. Or Fax to: 617-440-0357 Phone: 617-551-9800

Macworld

Advertiser Index

Say you saw it in Macworld. To purchase products advertised in this issue call the phone numbers below or use the reader service number for our Product Information Card located after the product index.

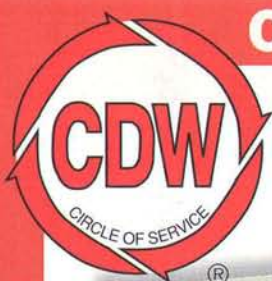
Page No.	Advertiser	Reader Svc. No.	Phone	Page No.	Advertiser	Reader Svc. No.	Phone	Page No.	Advertiser	Reader Svc. No.	Phone
75	Adobe	252	800/521-1976	20	Engineered Software	12	910/299-4843	62	Microspot USA, Inc.	3	800/622-7568
10	AGIO Designs	—	800/688-2446	150,151	Express Direct	81	800/765-0020	77	Microtek Lab, inc.	105	800/654-4160
10	Aladdin Systems	21	408/761-7200	79	Express Direct LLC	25	800/723-7755	59	Mind Spring	—	888/677-7464
26,27	Alliance Peripheral Systems	61	800/874-1428	65	Extensis	13	800/796-9798	6,7	Motorola Computer Group XMCW	207	800/759-1107
158,159	Alliance Peripheral Systems	62	800/874-1428	22,23	Fujitsu	202	800/626-4868	14	Orange Micro	33	714/779-2772
78	Alsoft	140	800/257-6381	61,63	GDT Softworks	32,34	800/663-6222	37	Pantone	15	800/PANTONE
73	American Power Conversion	72	800/289-APCC	63	GDT Softworks	43	800/663-6222	31	Phillips Consumer Electronics	16	—
8	Anthro	—	800/325-3841	55	Hitachi NSA	74	800/441-4832	93	Photodisc	114	800/633-3754
43	Apple Computer	—	—	178	IDG Books	—	—	132	PointCast	—	—
51	AppleSoft	—	—	153	J & R Music World	282	800/221-8181	IFC	Power Computing Corporation	151	800/410-7693
68,69	AppleSoft	—	—	BC	Kensington Microware Ltd.	1	800/535-4242	177	PowerTools	63	800/891-4307
33	ATI Technologies Inc	256	—	67	Kingston Technology	201	800/435-0677	176	ProDirect	135	800/524-9952
15	Auto-des-sys	49	—	162	L.A.Trade	—	800/433-3726	179	Seybold Online	—	—
166	Big Mac Computers	101	800/761-1999	96,97	LA CIE	52	800/999-1637	122	Seybold- New York	—	800/488-2883
81	binuscan	6	800/881-2352	87	Linotype-Hell	17	800/842-9721	105	Specular International	41	800/433-7732
171	Bottom Line Distribution	63	800/990-5794	164,165	Mac Bargains	71	800/619-9091	92	SPSS INC.	85	800/457-8287
11	Caere Corporation	69	800/635-SCAN	163	MacAcademy	106	800/527-1914	53	Tektronix	143	800/835-6100
40	Canon USA VCS Div.	82	800-OK-CANNON	154,155	MacConnection	145	800/800-3333	174,175	The Mac Zone	70	800/436-0606
185	CE Software, Inc.	170	800/523-7638	160,161	MacMall	131	800/222-2808	47	Umax Technologies	45	800/546-8557
168,169	ClubMac	96	800/CLUB-MAC	167	MacMarket	258	800/223-4622	83	ViewSonic	59	800/888-8583
147-149	Computer Discount Warehouse	2	800/861-4CDW	121	MacSoft	30	800/229-2714	13	Visioneer	—	800/787-7007
9	Corel Corporation	78	800/836-3729	156,157	MacWarehouse	150	800/725-1450	217	VocalTec, Inc.	217	—
172,173	CRA Systems, Incorporated	20	800/375-9000	84	Macworld Expo	—	800/645-EXPO	12	VST Technologies, Inc.	73	508/263-9700
IBC	Dantz	26	800/225-4880	152	MegaHaus	245	800/786-1184	44	Wacom Technology Corporation	146	800/922-2585
82	Dataviz	79	800/780-1466	21	MetaTools, Inc.	5	800/472-9025	71	Xerox Corporation	100	—
BC	Datawatch Corporation	35	800/847-3982	12	Micromat	77	800/829-6227				
16	DayStar Digital	7	800/532-7853	2,3	Microsoft Corporation	—	800/531-6748				
19	Deneba Software	57	800/733-6322								
24	Diehl Graphsoft	46	410/290-5114								
170	DigiCore	22	800/858-4622								
91	EarthLink Network	8	800/395-8425								

Macworld Product Index

A quick and easy product index from Macworld. Simply use this index to find the page or advertiser of the products which interest you. Then, use the reader service number for our FastFacts Product Information Card located on the following page.

Page No.	Advertiser	Reader Svc. No.	Page No.	Advertiser	Reader Svc. No.	Page No.	Advertiser	Reader Svc. No.	Page No.	Advertiser	Reader Svc. No.
SOFTWARE			STATISTICAL			HARD DISKS/STORAGE			SERVICES		
BUSINESS			92	SPSS INC.	85	158,159	Alliance Peripheral Systems	62	INTERNET SERVICE PROVIDERS		
9	Corel Corporation	78	UTILITIES			171	Bottom Line Distribution	63	59	Mind Spring	—
CAD/CAM			10	Aladdin Systems	21	168,169	ClubMac	96	ON LINE		
15	Auto-des-sys	49	78	Alsoft	140	22,23	Fujitsu	202	91	EarthLink Network	8
24	Diehl Graphsoft	46	185	CE Software, Inc.	170	67	Kingston Technology	201	TRADESHOWS/CONFERENCES		
20	Engineered Software	12	IBC	Dantz	26	96,97	LA CIE	52	84	Macworld Expo	—
COMMUNICATION			61,63	GDT Softworks	32,43	152	MegaHaus	245	122	Seybold- New York	—
82	Dataviz	79	12	Micromat	77	177	PowerTools	63	179	Seybold Online	—
217	VocalTec, Inc.	217	HARDWARE			176	ProDirect	135	TRAINING		
ENTERTAINMENT			BOARDS			INPUT DEVICES			163	MacAcademy	106
121	MacSoft	30	33	ATI Technologies Inc	256	BC	Kensington Microware Ltd.	1	ACCESSORIES		
GRAPHICS/DTP			14	Orange Micro	33	13	Visioneer	—	FURNITURE		
75	Adobe	252	COMPUTER SYSTEMS			MICRO PROCESSOR			10	AGIO Designs	—
15	Auto-des-sys	49	26,27	Alliance Peripheral Systems	61	IFC	Power Computing Corporation	151	8	Anthro	—
81	binuscan	6	51	AppleSoft	—	MISCELLANEOUS			MAIL ORDER		
9	Corel Corporation	78	166	Big Mac Computers	101	73	American Power Conversion	72	158,159	Alliance Peripheral Systems	62
19	Deneba Software	57	172,173	CRA Systems, Incorporated	20	31	Phillips Consumer Electronics	16	166	Big Mac Computers	101
65	Extensis	13	16	DayStar Digital	7	44	Wacom Technology Corporation	146	171	Bottom Line Distribution	63
63	GDT Softworks	43	150	Express Direct	81	MULTIMEDIA			168,169	ClubMac	96
21	MetaTools, Inc.	5	6,7	Motorola Computer Group XMCW	207	6,7	Motorola Computer Group XMCW	207	147-149	Computer Discount Warehouse	2
62	Microspot USA, Inc.	3	IFC	Power Computing Corporation	151	POWERBOOK			170	DigiCore	22
93	Photodisc	114	DIGITIZERS/SCANNERS			12	VST Technologies, Inc.	73	150,151	Express Direct	81
105	Specular International	41	79	Express Direct LLC	25	PRINTERS			153	J & R Music World	282
MISCELLANEOUS			87	Linotype-Hell	17	40	Canon USA VCS Div.	82	162	L.A.Trade	—
37	Pantone	15	77	Microtek Lab, inc.	105	61	GDT Softworks	32	164,165	Mac Bargains	71
NETWORKING			47	Umax Technologies	45	53	Tektronix	143	154,155	MacConnection	145
BC	Datawatch Corporation	35	DISPLAY			71	Xerox Corporation	100	160,161	MacMall	131
OCR			172,173	CRA Systems, Incorporated	20	SECURITY			167	MacMarket	258
11	Caere Corporation	69	55	Hitachi NSA	74	73	American Power Conversion	72	156,157	MacWarehouse	150
ONLINE			83	ViewSonic	59	DIRECTORY			152	MegaHaus	245
68,69	AppleSoft	—	EXPANSIONS/UPGRADES						177	PowerTools	63
91	EarthLink Network	8	16	DayStar Digital	7				176	ProDirect	135
2,3	Microsoft Corporation	—	162	L.A.Trade	—				174,175	The Mac Zone	70
132	PointCast	—									
217	VocalTec, Inc.	217									

Best Buys, Best Service!



MOTOROLA StarMax™

Quality, flexibility and affordability

Processor

- PowerPC 603e (3000 Series) or 604e (4000 Series) processor
- Integrated floating-point unit ● 32KB (603e) 64KB (604e) internal cache
- 256KB Level 2 cache

Memory

- 16MB standard (desktop models) or 32MB standard (mini-tower models)

Drives

- 1.2GB EIDE (desktop) or 2.4GB (mini-tower) hard drive
- 8X ATAPI CD-ROM drive

Modem (3000 Series only)

- 28.8K bps Motorola Lifestyle external

Expansion

- Three (desktop) or five (mini-tower) PCI expansion slots

Sound

- 16-bit stereo sound ● Built-in speaker ● Rear headphone jack

Keyboard and pointing device

- ADB extended keyboard ● ADB mouse

Monitor sold separately.

NEW!

Model	CPU	RAM	Hard drive	CD-ROM	Modem	VRAM	Price	CDW
3000/180 mini-tower	180MHz PowerPC 603e	32MB	2.4GB	8X	28.8K bps	1MB	\$1899.60	80727
3000/200 desktop	200MHz PowerPC 603e	16MB	1.2GB	8X	28.8K bps	1MB	\$1819.43	76820
3000/200 mini-tower	200MHz PowerPC 603e	32MB	2.4GB	8X	28.8K bps	1MB	\$1959.38	76821
3000/240 mini-tower	240MHz PowerPC 603e	32MB	2.4GB	8X	28.8K bps	1MB	\$2499.06	81130
4000/160 desktop	160MHz PowerPC 604e	16MB	1.2GB	8X	optional	2MB	\$2129.61	76822
4000/160 mini-tower	160MHz PowerPC 604e	32MB	2.4GB	8X	optional	2MB	\$2204.32	76824
4000/200 desktop	200MHz PowerPC 604e	16MB	1.2GB	8X	optional	2MB	\$2388.05	76825
4000/200 mini-tower	200MHz PowerPC 604e	32MB	2.4GB	8X	optional	2MB	\$2559.14	76826

UMAX® SUPERmac™
Computer Corporation

SuperMac Series

Designed from the ground up to be the premiere Mac OS®-based computer available, UMAX SuperMac computers are the new generation of Mac compatible computers that you can look to for performance, quality and value.

Serious tools for serious fun!

SuperMac C500/C600 Series

Bundled software includes the Mac® OS and ClarisWorks®.

Everything you need and more

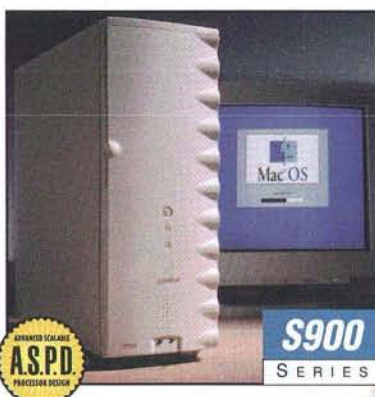
SuperMac J700 Series

Bundled software includes the Mac® OS, Asante Net Doubler, Micromat TechTool Pro, FWB CD-ROM & HD ToolKit and Casady & Greene Conflict Catcher V3.0.

Maximum expandability, maximum performance

SuperMac S900 Series

Features Umax's exclusive A.S.P.D., Advanced Scalable Processor Design.



Monitors sold separately.



Desktop	CPU	RAM	Hard drive	CD-ROM	Modem	PCI slots	Price	CDW
C500	160MHz PowerPC 603e	16MB	1.2GB	8X	—	2	\$1349.00	75926
J700	150MHz PowerPC 604	16MB	2.1GB	6.7X	—	4	\$2795.00	73855
Mini-tower	CPU	RAM	Hard drive	CD-ROM	Modem	PCI slots	Price	CDW
C600	180MHz PowerPC 603e	16MB	1.2GB	8X	28.8K bps	3	\$1695.00	75927
C600	200MHz PowerPC 603e	16MB	2.1GB	8X	28.8K bps	3	\$1995.00	75929
C600	240MHz PowerPC 603e	24MB	2.1GB	8X	28.8K bps	3	\$2295.00	77520
Tower	CPU	RAM	Hard drive	CD-ROM	Modem	PCI slots	Price	CDW
S900L	2 x 180MHz PowerPC 604e	32MB	2.1GB	8X	—	6	\$4595.00	73852
S900L	200MHz PowerPC 604e	32MB	2.1GB	8X	—	6	\$3795.00	73853
S900L	225MHz PowerPC 604e	32MB	2.1GB	8X	—	6	\$4295.00	75930

800-509-4239

www.cdw.com



Software for work and play!



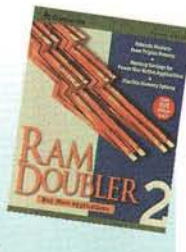
RAM Doubler 2

Connectix **Triple your memory**

Connectix RAM Doubler 2 triples your memory so you can run more applications and increase productivity.

- ✓ Works with as little as 8MB or as much as 84MB
- ✓ Lets you choose the right amount of additional memory you need
- ✓ Installs in just seconds and works automatically every time you start your Macintosh
- ✓ Memory compression is up to twice as fast as the original award-winning RAM Doubler 1x**
- ✓ Compatible with a full range of Macintosh hardware, software applications and entertainment titles

**According to Connectix tests



\$55.91

CDW 73962

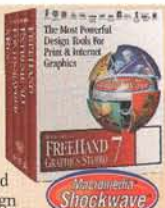
MACROMEDIA

FreeHand Graphics Studio 7 with Shockwave

A complete graphics solution

Unleash your creativity with Macromedia's FreeHand Graphics Studio 7 and Shockwave, the powerful design tool for print and Internet graphics. The Studio includes FreeHand 7, the leading tool for design, illustration and page layout; xRes3, for fast, high-res image editing and creation; Extreme 3D, for fast 3D modeling, animation and photo-realistic rendering; and Fontographer V4.1, the industry standard for type design.

Upgrade, CD	\$179.47	CDW 75616
Competitive upgrade, CD	\$187.08	CDW 75617
Full version, CD	\$405.36	CDW 75615



CLARIS FileMaker Pro V3.0

Relational database power!

From the moment you open the box, FileMaker Pro V3.0 makes your life easier with relational capabilities, more than 40 predefined templates, powerful task-automation features, word-processing enhancements and hassle-free integration of your old FileMaker files.



Version upgrade	\$89.75	CDW 63951
Full version	\$176.25	CDW 63817
FileMaker Pro V3.0 Server	\$899.29	CDW 65338



Adobe PageMill V2.0

More features, more power

Now you can create full-featured web pages without having to know a thing about HTML or URLs. Adobe PageMill™ software makes building web pages a simple, drag-and-drop operation! Just type in text or import it directly from standard office applications. Add easily-editable frames and tables to your web page. Create image maps or linked hotspots. Include audio, video, animated GIFs and PDF files. PageMill also features spell-check, a find-and-replace tool, and even a powerful, yet easy-to-use, integrated source code editor.



\$94.90

CDW 73243

ADOBE

Acrobat V3.0 CD	179.41
After Effects V3.1 CD	624.65
Illustrator V6.0 (3.5" + CD)	359.18
Illustrator V6.0 upg 3.5" to 6.0 (3.5" + CD)	114.98
Illustrator V6.0 upg 3.5" to 6.0 (CD only)	89.96
Illustrator V6.0 upg 5.0 to 6.0 (3.5" + CD)	114.98
Illustrator V6.0 upg 5.0 to 6.0 (CD only)	89.96
PageMaker V6.0 10.5" + CD	545.78
PageMaker V6.0 upg	129.81
PageMaker V6.5 CD	545.78
PageMaker V6.5 comp upg CD	114.98
PageMaker V6.5 vers upg CD	89.96
PageMill V2.0 CD	94.90
Persuasion V4.0 CD	46.69
Persuasion V4.0 vers upg CD	24.95
PhotoDeluxe V4.0 upg CD	114.98
PhotoDeluxe V4.0 CD	89.24
Photoshop V4.0 CD	549.26
Photoshop V4.0 vers upg CD	129.81
Premiere V4.2 CD	454.79
Premiere V4.2 upg CD	129.81
SiteMill V1.0	176.14
Streamline V3.1	119.06
Type Manager Deluxe V4.0 CD	47.81
Type Manager Deluxe V2.0	36.70
Apple® Internet Connection Kit V1.1 CD	43.65
Apple® Mac OS 7.5.3 CD	93.15
Apple® Mac OS 7.5.3 w/Internet Connection Kit CD	96.55
Apple® Remote Access Personal Server V2.1	166.57

CAERE

OmniForm V2.0	169.47
OmniPage Direct V2.0	57.70
OmniPage Pro V7.0 CD	478.42
OmniPage Pro V7.0 upg CD	114.48

CASADY & GREENE

Conflict Catcher 3	58.54
Conflict Catcher 3 comp upg	35.15
Conflict Catcher 3 vers upg	34.94

CLARIS

ClarisDraw V1.0	179.98
ClarisDraw V2.0	79.90
ClarisOrganizer V1.0 w/CLICKBOOK	44.95



ClarisWorks V4.0 CPU bundle	63.15
ClarisWorks V4.0 vers comp upg	29.70
ClarisWorks V4.0 w/Internet	115.25
Emaker V1.1	41.56
FileMaker Pro V3.0	176.25
FileMaker Pro V3.0 Server	899.29
FileMaker Pro V3.0 upg	89.75
Home Page V1.0	59.17
Home Page V2.0 CD	57.73
Home Page/Sound Edit bundle CD	73.83

COREL

Corel CD Creator CD	154.42
Corel Gallery V1.0 CD	21.22
Corel Painter V2.0 CD	37.27
Corel Mega Gallery CD	59.75
Corel Print House CD	31.43
Corel Stock Photo Library 1 CD	859.26
Corel Stock Photo Library 2 CD	859.26
Corel Stock Photo Library 3 CD	879.30
Corel WEB GALLERY CD	63.03
Corel WordPerfect V3.5 CD	149.64
Corel WordPerfect V3.5 upg CD	79.51
CorelDRAW 6 Suite CD	359.18
CorelDRAW 6 Suite upg CD	136.37
Dantz Retrospect Remote V3.0	136.09
Dantz Web Buddy V1.0	47.13
Dataview Vixx V5.6	29.42
Deneba Canvas V5.0 3.5" + CD	379.63
Deneba Canvas V5.0 comp upg	138.15

EDUTAINMENT

Activision MechWarrior 2	46.35
Berkeley After Dark V3.2	32.85
Berkeley You Don't Know Jack CD	29.72
Broderbund MYST CD	37.49
Bunge Marathon 2: Durandal	42.46
Bunge Marathon CD	37.32
Casady & Greene Amoebarena CD	35.42
Casady & Greene Zone Warrior CD	35.42
Davidson The Perfect Resume	34.57
Davidson WarCraft Orcs & Humans CD	31.37
Interplay Descent II CD	49.45
Interplay Virtual Pool CD	42.10
Lucas Arts The Dig CD	26.90
Maxis Scourin in the Great Round	36.78
Maxis SimCity 2000	23.67
Maxis SimCity 2000 Special Edition CD	37.24
Maxis SimCity Classic	19.73
Virgin Flight Unlimited CD	35.89

FRACTAL DESIGN

Dabbler V2.0 CD	42.81
Detailer CD	274.61
Expression CD	269.17
Painter V4.0	304.94
Painter V4.0 upg	119.10
Poser V2.0 CD	117.63
Poser V2.0 upg CD	62.37
Ray Dream Studio V4.1 CD	268.77

FWB

CD-ROM Toolkit V2.0	49.24
Hard Disk Toolkit V2.01	49.37

INSIGNIA

MacTransfer for Windows 95 PCs	45.15
SoftWindows 95 CD	324.04
SoftWindows for Peripherals	109.86
SoftWindows V4.0	285.81
SoftWindows V3.0 CD w/CPU purchase	179.20

INSTANT

MacTax 1996	41.85
MacTax Deluxe 1996 CD	51.80
QuickBooks Pro V4.0	179.41
QuickBooks V4.0	109.91
QuickBooks Deluxe V7.0 CD	59.07
QuickBooks V7.0	42.10

MetaTools

Kai's Power GOO

\$49.95

CDW 70045



MACROMEDIA

Authorware Interactive Studio	1924.38
Director 5 CD	729.60
Director 5 upg CD	368.91
Director Multimedia Studio 2 CD	689.01
Director Multimedia Studio 2 upg CD	458.47
Extreme 3D CD	339.49
Extreme 3D comp upg CD	179.69
Fontographer V4.1 CD	309.82
FreeHand 7 CD	379.22
FreeHand 7 comp upg CD	138.15
FreeHand 7 upg CD	138.15
FreeHand Graphics Studio 7 CD	405.36
FreeHand Graphics Studio 7 comp upg CD	187.08
FreeHand Graphics Studio 7 upg CD	179.47
SoundEdit 16 V2.0 CD	264.62
SoundEdit 16 V2.0 plus DECK II CD	339.60
xRes 3 CD	378.90
xRes 3 comp upg CD	185.14

METATOOLS

Bryce 2 CD	179.00
Kai's Power Goo CD	49.95
Kai's Power Tools 3 CD	129.00
Power Photos I CD	129.00
Power Photos II CD	129.00
Power Photos III CD	129.00
Power Photos IV CD	129.00
Vector Effects V1.0	129.00

METROWERKS

CodeManager 3	319.28
CodeWarrior Gold 10 CD	319.38
CodeWarrior Gold 11 CD	328.66
Discover Programming for Macintosh V2.0	64.75
Discover Programming with Java V2.0	64.75

MICROSOFT

Arcade V1.0	29.08
Cinemania 97 CD	31.03
Encarta Deluxe 97 CD	67.24
Excel V5.0	238.44
Excel V5.0 upg	114.98
Flight Simulator V4.0	44.65
Office V4.2.1 CD	449.31
Office V4.2.1 Small Business CD	479.08
Office V4.2.1 vers upg CD	286.06
Office V4.2.1 vers upg	285.86
PowerPoint V4.0	296.94
PowerPoint V4.0 upg	114.98
Project V4.0	135.37
Visual FoxPro V3.0 CD	439.61
Visual FoxPro V3.0 upg CD	265.72
Word V6.0.1	298.44
Word V6.0.1 vers upg	114.98
Works V4.0	45.46

WarCraft II: Tides of Darkness

\$45.38

CDW 73009



NOW SOFTWARE

Contact/Up to Date V3.6 bundle CD	62.36
Startup Manager V7.0	47.71
Up-to-date Web Publisher V1.0 CD	114.76
Utilities V6.5 CD	76.38

QUARK

QuarkXPress V1.0 CD	669.64
QuarkXPress V3.32 CD	669.69

STRATA

Media Paint V1.1	399.97
Studio Pro V2.0 DR1 CD	13.52
Vision 3D V4.0	228.61

SYMANTEC

ACT! V1.0 for Newton	89.13
ACT! V2.5	148.18
ACT! V2.5 upg	47.79
Norton Disktool V4.0	72.70
Norton Utilities V3.2	84.27
SAM AntiVirus V4.5	54.17
Suitcase V3.0	64.88
Symantec Cafe	87.93

Corporate sales: 800-280-4239
Government/Education sales: 800-808-4239

A NASDAQ COMPANY
Ticker Symbol CDWC • D&B rated SA1 • Duns 10-762-7852

CDW TELEPHONE HOURS

Sales: Monday-Friday 7am-5pm CT
Saturday 9am-5pm CT
Tech Support for Customers:
Monday-Friday 8am-5pm CT
Saturday 9am-5pm CT



800-509-4239
www.cdw.com

©1997 CDW Computer Centers, Inc. • 1020 E. Lake Cook Road Buffalo Grove, Illinois 60089-7191

FAX (847) 465-6800

MONITORS

NEC

M500 15" 25mm w/speakers	375.29
XV15+ 15" 28mm	375.29
XV17+ 17" 28mm	699.16
XE21 21" 28mm	1705.89

MAGNAVOX

CM2080 14" 29mm	249.56
MB7000 17" 28mm	569.21
20CM64 20" 31mm	849.00

SONY

100sx 15" 25mm	379.41
100sf 15" 25mm	449.49
200sx 17" 25mm	654.75
200sf 17" 25mm	759.99
17se21 17" 25mm	929.78
300sf21 20" 30mm	1565.46

ViewSonic®

15GA 15" Graphics Series 27mm	405.97
17GS 17" Graphics Series 27mm	616.79
17GA 17" Graphics Series 27mm	649.29
GT770 17" Graphics Series 25mm	674.31
PT770 17" Professional Series 25mm	716.58
GT800 20" Graphics Series 30mm	1309.16
GA810 21" Graphics Series 25mm	1396.00
PE810 21" Professional Series 25mm	1469.32
PT810 21" Professional Series 30mm	1579.55
PE815 21" Professional Series 25mm	1639.92

RADIUS

PressView 17SR 17" 28mm	1929.61
MultiView 21 21" 25mm	1415.31
PrecisionView 21 21" 25mm	2269.55
PressView 21SR 21" 25mm	3119.83

GRAPHICS VIDEO BOARDS



Xclaim GA 2MB PCI	236.16
Xclaim 3D 4MB PCI	229.86
Xclaim 3D 8MB PCI	314.51
Xclaim VR 2MB PCI	219.56
Xclaim VR 4MB PCI	289.68

RADIUS

Thunder 30/1600	694.68
ThunderColor 30/1152	1585.73
ThunderColor 30/1600	1988.22
ThunderPower 30/1920	1206.25



Bravado 1000 PCI	636.16
Targa 1000 PCI	1574.05

MODEMS



PowerPort Platinum 28.8 PC Card	269.85
PowerPort Platinum Pro 28.8 PC Card	429.61
TelePort Internet Edition 33.6	169.57
TelePort Speakerphone Edition 33.6	247.34



28.8 cellular-capable CruiseCard	219.85
33.6 Ethernet 10BT PC Card w/RJ11	299.10
AllPoints wireless PC Card	464.12



33.6 V.34 external mini-tower w/fax	124.66
MacClass 14.4 PC Card	149.69
MacClass 28.8 PC Card	189.17
MacClass 33.6 PC Card	199.65



Sportster 28.8 PC Card w/DataView	189.12
Sportster 33.6 external	189.29
Sportster Voice 33.6 external	189.68
Courier V Everything 33.6 external	269.51
Courier i-modem	344.74

STORAGE SYSTEMS

CD-ROM DRIVES	
Hi-Vai 4X SounTastic CD-ROM Kit	159.60
Hi-Vai 8X SounTastic CD-ROM Kit	259.11
Hi-Vai 10X SounTastic CD-ROM Kit	269.11
Hi-Vai 12X SounTastic CD-ROM Kit	269.82
Panasonic 4X Portable for PowerBooks	299.00

FWB

HammerCD 2X/4X CD-ROM recorder	869.58
HammerCD 4X CD-ROM recorder	1259.73

iomega

Zip drive 100MB SCSI external	199.95
100MB Zip disk	19.95
100MB Zip disk 3-pack	49.95
Jaz Drive 1GB SCSI-II external	499.95
1GB Jaz disk	124.95
1GB Jaz disk 3-pack	299.95

MicroNet

Advantage 1GB Jaz drive external	526.37
Advantage 1GB Jaz disk	110.00
Advantage 2.6GB optical drive external	1749.54
Advantage 2.6GB optical cartridge	105.44
MCD Plus 2x4 CD-recorder	729.30
MCD Plus 4x4 CD-recorder	1095.60
4X CD-recordable disc	9.59

STORAGE SYSTEMS



EZFlyer 230MB external	269.47
EZFlyer 230MB cartridge	29.39
SyJet 1.5GB SCSI internal	399.00
SyJet 1.5GB SCSI external	499.00
SyJet 1.5GB cartridge	109.25
Media	
3M 63 minute (550MB) CD-recordable	8.93
3M 74 minute (650MB) CD-recordable	8.96
Sony 100MB Zip disk	13.85
Fuji 100MB Zip Disk	19.00
88MB SyQuest cartridge	45.41
200MB SyQuest cartridge	62.93
270MB SyQuest cartridge	51.55

Need more disk space? CDW also carries APS, IBM, LaCie, Micropolis, Quantum and Seagate SCSI hard drives. Call for details.

INPUT DEVICES

AGFA

ePhoto 307 digital camera	529.63
PDC 2000/40 digital camera	3209.20
SnapScan flatbed scanner	329.85
StudioScan Ili flatbed scanner	694.13
StudioStar flatbed scanner	799.24
Arcus II flatbed scanner	1995.00

ALPS

Portable GlidePoint	41.45
Desktop GlidePoint	69.84
GlidePoint Keypad	73.58
GlidePoint Keyboard	108.00

ADESSO

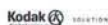
PowerMouse	19.59
Soft Touch Plus extended keyboard	47.35
NU-Form extended keyboard w/touchpad	59.98
Tru-Form extended keyboard	57.12
Tru-Form extended keyboard w/pointer	66.81

CONNECTIX

QuickCam digital video camera	97.12
Color QuickCam digital video camera	224.71

EPSON®

PhotoPC digital camera	399.00
PhotoPC 500 digital camera	499.00
Action Scanning System II	376.41
ES-1000C color flatbed scanner	578.06
Expression 636 Executive scanner	848.57
Expression 636 Artist scanner	1269.71
Expression 636 Professional scanner	1756.88



DC20 24-bit digital camera	199.00
DC25 24-bit digital camera	499.00
DC50 24-bit digital camera w/Zoom lens	699.00

LOGITECH

Cordless Mouse Man	61.39
TrackMan Marble	83.23
TrackMan Live!	119.24

MICROTEK

ScanMaker E3	309.26
ScanMaker E6 Standard	556.25
ScanMaker E6 Professional	739.29
ScanMaker 351 Plus	739.71
ScanMaker III w/trans adapter	1399.25

NIKON

AX-110 Scantouch flatbed scanner	279.87
AX-210 Scantouch flatbed scanner	578.57
AX-1200 Scantouch flatbed scanner	725.91
LS-20 Super CoolScan II	1154.02
Super CoolScan film scanner	1727.85

POLAROID

SprintScan 35LE film scanner	779.41
SprintScan 35ES film scanner	1499.92
SprintScan 35+ film scanner	2049.17

UMAX

Vista-S6E with PhotoDeluxe	289.60
Vista-S6E with full Photoshop	556.14
Vista-S12 with PhotoDeluxe	510.00
Vista-S12 with Photoshop LE	629.93
Vista-S12 with full Photoshop	704.28
PowerLook II	1995.00



PaperPort/Vx	277.21
--------------	--------

PRINTERS

EPSON®

Stylus Color 500	279.00
Stylus Pro	379.00
Stylus 1500	995.00
Stylus Pro XL	1799.00



HP DeskJet 870Cse printer	499.00
HP DeskJet 340 portable inkjet printer	289.84
HP DeskWriter 680C printer	285.76
HP DeskJet 1600CM printer	1959.11
HP LaserJet 6MP printer	878.45

Brilliant video!



XCLAIM 3D

3D and 2D graphics acceleration

Phenomenal 3D & 2D graphics performance for design and multimedia professionals

- Incredible QuickDraw 3D acceleration performance
- High-resolution, true-color support up to 1280 x 1024
- Ergonomic flicker-free refresh rates

XCLAIM 3D 4MB PCI	\$229.86	CDW 75078
XCLAIM 3D 8MB PCI	\$314.51	CDW 75079
XCLAIM 3D 4MB SGRAM upgrade	\$155.40	CDW 75082



Bravado 1000

Professional digital video editing solution

- ▼ Full-screen video capture at 60 fields per second NTSC
- ▼ Variable-rate, real-time motion JPEG compression from 5:1 to 100:1
- ▼ 24-bit true color capture
- ▼ Two composite inputs and one S-video input
- ▼ Two simultaneous video outputs
- ▼ PCI local bus with Burst DMA

Bravado 1000	\$636.16	CDW 71420
Targa 1000 PCI	\$1574.05	CDW 71421
Targa 2000 PCI	\$3227.49	CDW 65117



DJ702e

17" monitor

High-performance color and resolution

- 17" Microfilter™ flat square display (16.1" viewable image size)
- .28mm dot pitch
- Anti-glare, anti-static coating
- Resolution: 1024 x 768 at 75Hz refresh rate
- 3-year parts warranty, 2-year CRT, 1-year labor

\$589.26 CDW 79019

ViewSonic®

PT770

17" monitor

Designed for the most advanced CAD/CAM/CAE and desktop publishing requirements

- * 17" CRT (16" viewable image size)
- * .25mm aperture grille pitch
- * Anti-static, ARAG™
- * Maximum non-interlaced resolution: 1,600 x 1,280
- * 1280 x 1024 at 77Hz refresh rate
- * 3-year limited warranty

PT770	\$718.58	CDW 64829
PT810 21" monitor	\$1579.55	CDW 64831

* 20" viewable image size * 1600 x 1200 at 77Hz

Call for a
FREE CDW
Macintosh catalog!

FAX (847) 465-6800



800-509-4239
www.cdw.com

express
direct

Confused



UMAX®

S900L
240
 MHz 604e
\$4985
C500
 from only
\$1349
 \$49/mo. lease

Model/MHz	Processor	RAM/HD/CD	Price
SuperMac C500/160	603e	16MB/1.2GB/8X	\$1349
SuperMac C600/180	603e	16MB/1.2GB/8X	\$1695
SuperMac C600/200	603e	16MB/2.1GB/8X	\$1989
SuperMac C600/240	603e	24MB/2.1GB/8X	\$2289
SuperMac J700L/150	604	16MB/2.1GB/6.7X	\$2779
SuperMac J700L/180	604	24MB/2.1GB/8X	\$3089
SuperMac J700L/180	604e	32MB/2.1GB/8X	\$3569
SuperMac S900L/180	604e	32MB/2.1GB/8X	\$3779
SuperMac S900L/200	604e	32MB/2.1GB/8X	\$4279
SuperMac S900L/225	604e	32MB/2GB/8X	\$4279
SuperMac S900L/240	604e	32MB/2GB/8X	\$4985

ALL MAC PRICES
SLASHED!
 from only
\$1349
 \$49/mo. lease

APPLE

Model/MHz	Processor	RAM/HD/CD	Price
PowerMac 7200/120	601	16MB/1.2GB/8X	\$1349
PowerMac 7600/132	604	16MB/1.2GB/8X	\$1789
PowerMac 8500/150	604e	16MB/1.2GB/8X	\$2179
PowerMac 8500/180	604e	32MB/2GB/8X	\$2679
PowerMac 9500/200	604e	32MB/2GB/8X	\$3169
PowerMac 9500/180	604e	32MB/2GB/8X	\$3969

Call for pricing on the new PowerMacs!

POWERTOWER PRO 225 Complete Publishing System

- PowerTower Pro 225 with
- 32MB of RAM, 1MB Level 2 cache
- 2GB AV HD & 8x CD-Rom Drive
- IMS TwinTurbo 128 MB graphics card
- Extended Keyboard
- 17" Trinitron Monitor
- 6 PCI expansion slots
- QuarkXpress 3.32
- Adobe Illustrator 6.0 with FREE PageMill 1.0 & more!
- UMAX S12: 33-bit color, 1200dpi scanner with
- Adobe Photoshop & OmniPage OCR
- Live Picture SE
- PLUS an extra \$1200 of software

 Complete system price \$6,929
 Lease for only \$239/month*

 from only
\$6929
 \$259/mo. lease
We've got the entire Power Computing line
Call for Custom Configurations!

Over 5,000 products for the graphics professional—

ACROSS 12" X 9"
DIGITAL TABLET

Includes full FreeHand 7


 both
 for only
\$399
EXTENSIONS
DIRECT

MW ★★★★★

only
\$89both
\$129For a complete offering of extensions
& plug-ins, visit Extensions Direct at:

www.expressdirect.com

HITACHI SUPERSCAN
MC80121" CRT (20" viewable) .28
dot pitch. Supports resolutions
up to 1600 x 1200 at 68Hz!Only
\$1799

HITACHI

NEW! Exclusive authorized mail order reseller

Media 100 qx

The ultimate system for digital video!
Includes full Premiere 4.2Only
\$3995

about what's NeXT?

Let's Talk!

Our consultants know their stuff.
Let us help you get the right system
for your needs and budget.



MOTOROLA

UMAX



PowerComputing



We help you put it all together.

CUSTOM CONFIGURATION
express
direct
Specialists

- Expert Advice
- Free Tech Support
- Fast Delivery
- On-Site Warranties
- Business Leases Available

240
MHz

NEW!

3000DT
from only
\$1649
\$55/mo. lease

5
Year
Warranty

MOTOROLA

Model/MHz	Processor	RAM/HD/CD	Price
StarMax 3000DT/180	603e	16MB/1.2GB/8X	\$1649
StarMax 3000MT/180	603e	32MB/2.5GB/8X	\$1949
StarMax 3000DT/200	603e	16MB/1.2GB/8X	\$1979
StarMax 3000MT/200	603e	32MB/2.5GB/8X	\$2179
StarMax 4000DT/200	604e	16MB/1.2GB/8X	\$2795
StarMax 4000MT/200	604e	32MB/2.5GB/8X	\$3195



1-800-765-0020

Order Toll Free M-Th 8am-7pm, Fri til 6pm • 24 Hour Fax • Customer Service Hotline: 1-800-236-3059

Shop our Web site for thousands of
products & great deals!

www.expressdirect.com



express
direct

2720 North Paulina Avenue • Chicago • Illinois • 60614

if you don't see it...call!

DISK ARRAYS

Arrays from 4GB to
36GB



MicroNet

PRICES
SLASHED!



From
\$2399

STYLUS PRO XL

Tablet size color printing.
Includes FREE Live Picture
Productivity Pak Offer!

Only
\$1799



EPSON

METASCAN 600

30-bit color, 600 x 1200dpi,
single pass. Includes
MetaTools Imaging Suite
SE, OCR software & more!

Full Photoshop bundle only \$249.



Only
\$399

Across
TECHNOLOGIES

International ORDERS SHIPPED DAILY PHONE: (773)244-3000 • FAX: (773)244-3081

Circle 81 on reader service card

MACWORLD April 1997 151

• SCSI HARD DRIVES •

MICROPOLIS

						Int	Ext
2147MB	9ms	5400rpm	512K	MC4421	5yr	\$369	\$439
4550MB	7.9ms	7200rpm	512K	MC4345	5yr	\$959	\$1029
9091MB	8.5ms	7200rpm	512K	MC3391	5yr	\$1689	\$1759
SCSI A/V - Drives fine tuned for audio and video applications.							
4550MB	7.9ms	7200rpm	512K	MC4345AV	5yr	\$1129	\$1199
9091MB	8.5ms	7200rpm	512K	MC3391AV	5yr	\$1899	\$1969
WIDE SCSI							
4294MB	8ms	7200rpm	512K	MC3243W	5yr	\$829	\$959
4550MB	7.9ms	7200rpm	512K	MC4345W	5yr	\$999	\$1129
9091MB	8.5ms	7200rpm	512K	MC3391W	5yr	\$1739	\$1869
WIDE SCSI A/V							
4294MB	8ms	7200rpm	512K	MC3243WAV	5yr	\$929	\$1059
4550MB	7.9ms	7200rpm	512K	MC4345WAV	5yr	\$1159	\$1289
9091MB	8.5ms	7200rpm	512K	MC3391WAV	5yr	\$1939	\$2069

Seagate

1050MB	9ms	5400rpm	512K	ST31055N	5yr	\$339	\$409
2150MB	9ms	5400rpm	512K	ST32155N	5yr	\$475	\$545
2150MB	8ms	7200rpm	1024K	ST32171N	5yr	\$699	\$769
4350MB	8ms	7200rpm	512K	ST34371N	5yr	\$1089	\$1159
9100MB	8ms	7200rpm	512K	ST31917N	5yr	\$2099	\$2169
23200MB	13ms	5400rpm	512K	ST423451N	5yr	\$3999	\$4199
WIDE SCSI							
1050MB	9ms	5400rpm	512K	ST31055W	5yr	\$389	\$519
2150MB	9ms	5400rpm	512K	ST32155W	5yr	\$519	\$649
2150MB	8ms	7200rpm	1024K	ST32171W	5yr	\$779	\$909
4350MB	8ms	7200rpm	1024K	ST34371W	5yr	\$1189	\$1319
4550MB	7.5ms	10,000rpm	512K	ST34501W	5yr	\$1699	\$1839
9100MB	8ms	7200rpm	1024K	ST19171W	5yr	\$2149	\$2279
9100MB	8ms	10,000rpm	512K	ST19101W	5yr	\$3599	\$3729
23200MB	13ms	5400rpm	512K	ST423451W	5yr	\$4069	\$4269

Quantum

1280MB	12ms	4500rpm	128K	TM31280S	3yr	\$265	\$335
2110MB	10.5ms	4500rpm	128K	TM32110S	3yr	\$319	\$389
3254MB	10.5ms	4500rpm	128K	TM33200S	3yr	\$369	\$439
4550MB	8ms	7200rpm	512K	XP34550S	5yr	\$929	\$999
9100MB	8ms	7200rpm	512K	XP39100S	5yr	\$1539	\$1609
WIDE SCSI							
4550MB	8ms	7200rpm	512K	XP34550W	5yr	\$929	\$1059
9100MB	8ms	7200rpm	512K	XP39100W	5yr	\$1599	\$1729

FUJITSU

2.5GB IDE DRIVE ONLY \$249

4400MB	8ms	7200rpm	512K	M2954S	5yr	\$819	\$889
9100MB	8ms	7200rpm	512K	M2949S	5yr	\$1549	\$1649
WIDE SCSI							
4400MB	8ms	7200rpm	512K	M2954W	5yr	\$869	\$999
9100MB	8ms	7200rpm	512K	M2949W	5yr	\$1579	\$1709



Turn Virtually any 3 1/2" Hard Drive Into a Removable!

Just mount any 3 1/2" hard drive in the included cartridge, and the included frame in a 5 1/4" drive bay in your computer. It's that simple. Great for portability, data interchange, or security needs. Extremely high quality construction cartridge and frame, cooling fan. Unit has SCSI ID select on the cartridge. Qty discounts available.

Interface	System	Extra Cartridge	Extra Frame
SCSI	\$85 #DP2200S	\$40 #DPSCART	\$54 #DPFRAME
WIDE SCSI	\$129 #DP2200W	\$64 #DPWCART	\$75 #DPWFRAME
Weather resistant case to store/transport cartridge # DPCASE \$55			

• MEDIA •

Teijin Optical Disks - Features a LIFETIME WARRANTY!

Qty prices shown are 2-4/5+ Larger qty pricing avail. Call for details.			
230MB, 3.5"	\$18/\$14	540MB, 3.5"	\$35/\$31
600MB, 5.25"	\$38/\$34	650MB, 5.25"	\$38/\$34
1.3GB, 5.25"	\$49/\$45	2.3GB, 5.25"	\$70/\$65
		2.6GB, 5.25"	\$70/\$65

CD-R Media

5 Pack \$40	20 Pack \$149	50 Pack \$359	100 Pack \$699
-------------	---------------	---------------	----------------

CD-R labels w/template software & applicator \$55

Backup Tapes - Call for quantity discounts.

4mm 120M [DAT120M] \$27, 8mm 160M [DAT120M] \$23, DLT3 [DLT3] \$52, DLT4 [DLT4] \$105

• SPECIAL FEATURE PRODUCTS •

Nakamichi 8X SCSI 4 Disc CD-ROM Changer

150ms, 256K cache. Internal [MJ48S] \$299 External [MJ48SX] \$399

Toray PD-ROM 650MB PD and CD-ROM in ONE unit.

Software included. External [PWS650] \$379 Ask about rebate!

• REMOVABLES •

EXTERNAL
(Call for Int. or bare price)

IONEGA Call about Iomega rebate

100MB ZIP w/1 FREE DISK!	\$179 [ZIP100]
1GB JAZ w/1 FREE DISK!	\$469 [JAZX]
SYQUEST Call about SyQuest rebate	
230MB EZFlyer, EZ135MB compatible, 1 Free disk	\$279 [EZ230S]
NOMAI Call about Nomai rebate	
540MB MCD, SyQuest 270MB compatible, 1 Free disk	\$297 [MCD540MACX]
MEDIA Call for larger quantity discounts.	
Iomega Zip Qty 2-4/5-9/10+ \$23/\$18/\$16 Jaz for Mac Qty 2-4/5-9/10+ \$99/\$94/\$90	
Nomai 100% SyQuest compatible. 44MB \$34 88MB \$38 200MB \$62 230MB \$21 270MB \$52	
Genuine SyQuest 44MB \$44 88MB \$48 105MB \$56 135MB \$26 200MB \$72 230MB \$30 270MB \$58	

• OPTICALS •

FUJITSU	
230MB, 128MB compatible, for Powerbook 190 & 5300	\$399 [M2541PMKIT]
640MB, 128 & 230MB compatible, 512K buffer, 1 Free disk	\$625 [MAC2513AXC]
640MB, 128 & 230MB compatible, 2MB buffer, 1 Free disk	\$655 [MAC2513A2XC]
SMART STORAGE SOLUTIONS	
230MB, 128MB compatible, 4500rpm, 1 Free disk	\$459 [SSS230M]
640MB, 128 & 230MB compatible, 512K buffer, 1 Free disk	\$599 [SSS640M]
2.6GB, 650MB & 1.3GB compatible, 3000rpm, 1MB, 1 Free disk	\$1699 [SSS2.6M]
MAXOPTIX	
2.6GB, 650MB & 1.3GB compatible, 3000rpm, 1MB, 1 Free disk	\$1869 [MACTAH2.6]
HEWLETT PACKARD	
2.6GB, 650MB & 1.3GB compatible, 3000rpm, 1MB, 1 Free disk	\$2295 [C1113FMACX]

• CD ROM DRIVES •

NEC 4X 200ms 128K Tray	\$189 [CDR222XM]
Philips 8X 185ms 256K Tray	\$295 [PC805XM]
NEC 8X 145ms 256K Tray	\$295 [CDR1410XM]
Plextor 8X 115ms 256K Caddy	\$389 [PX83CSXM]
Toshiba 12X 115ms 256K Tray	\$299 [XM5701XM]
Plextor 12X 105ms 512K Tray	\$409 [PX12TSXM]
Plextor 12X 105ms 512K Caddy	\$439 [PX12CSXM]
Toshiba 15X 99ms 256K Tray	\$359 [XM3801XM]

• CD RECORDERS •

SMART STORAGE SOLUTIONS 4x6 coming soon!	
2x6, 1MB buffer, caddy loading, 5 free disks	\$499 [SSS2X4CDRM5]
4x4, 512K buffer, caddy loading, 5 free disks	\$859 [SSS4X4CDRM]
RICOH	
2x4, 2MB buffer, caddy loading, 1 free disk	\$529 [R01420C2XM]
TEAC	
4x4, 1MB buffer, tray loading, 1 free disk	\$839 [CDR505XM]
YAMAHA	
4x4, 512K buffer, caddy loading, 1 free disk	\$879 [YCDR100XM]
These CD Recorders include Toast CD Mastering software. Priced as External for Macintosh. Call for internal configuration or bare drive pricing.	

• SCSI TAPE BACKUP •

These tape drives include backup software and 1 FREE TAPE!

HEWLETT PACKARD	
2GB, 4mm, DAT, 12MB/min	\$659 [C1534XM]
2-4GB, 4mm, DDS DAT, 42MB/min	\$745 [C1536XM]
4-8GB, 4mm, DDS-2 DAT, 60MB/min	\$1079 [C1599XM]
12-24GB, 4mm, DDS-3 DAT, 120MB/min	\$1629 [C1554XM]
24-48GB, 4mm, DDS-2 DAT, 6 tape loader, 88MB/min	\$2539 [C1553XM]
SEAGATE	
2-4GB, 4mm, DDS DAT, 48MB/min	\$745 [C4324XM]
4GB, TR4 minicartridge, 30MB/min	\$465 [TST8000XM]
4-8GB, 4mm, DDS-2 DAT, 48MB/min	\$909 [C4326XM]
48-96GB, 4mm, DDS-2 DAT, 12 tape loader, 48MB/min	\$2219 [C4586XM]
EXABYTE	
3.5-7GB, 8mm, DAT, 32MB/min	\$1375 [EXB8205XM]
7-14GB, 8mm, DAT, 60MB/min	\$1099 [EXB8700LTXM]
7-14GB, 8mm, DAT, 60MB/min	\$1989 [EXB8505XM]
20-40GB, 8mm, AME, 360MB/min	\$4659 [EXB8900XM]
70-140GB, 8mm, DAT, 10 tape loader, 60MB/min	\$4359 [EXB10HXM]
SONY	
4-8GB, 4mm, DDS-2 DAT, 44MB/min	\$895 [SDTS000XM]
4-8GB, 4mm, DDS-2 DAT, 90MB/min	\$950 [SDT7000XM]
12-24GB, 4mm, DDS-3 DAT, 144MB/min	\$1279 [SDT9000XM]
32-64GB, 4mm, DDS-2 DAT, 8 tape loader, 90MB/min	\$2199 [TSL7000XM]

UMAX Computers



UMAX S900L

180MHz Mac OS-Compatible MiniTower Computer
•180MHz 604e PowerPC™ CPU
•32MB RAM •2.1GB hard drive
•8X-speed CD-ROM drive •128-bit graphics card with 4MB VRAM •6 PCI slots, 5 expansion drive bays
•Extended keyboard and mouse

\$3595⁹⁹ (UMX S900L/180)

UMAX S900L 200MHz (UMX S900L/200)\$3795.99

UMAX S900L 225MHz (UMX S900L/225)\$4295.99

Global Village Modems



Global Village TelePort Platinum™

33.6Kbps Data/Fax Modem
•Fax in background as you work
•V.34 data compression for fast throughput up to 115.2Kbps
•Flash ROM upgradeable
•For Macintosh desktops

\$169⁹⁹ (GLV TELE336NET)

TelePort 33.6 Speakerphone, simultaneous voice/data transmission (GLV TELEPORT336)\$199.99, after \$50 mail-in rebate (rebate offer expires 3/31/97)

Scanners



Epson ES-1000C

Business Color Scanner
•30-bit color for over a billion colors
•400 x 800 dpi optical resolution, 3200 dpi (interpolated)
•Comes with Adobe Photoshop LE 3.0, Xerox TextBridge OCR, and ScanTastic

\$579⁹⁹ (EPS ES1000C-MAC)

Microtek Scanmaker E6 Color Scanner (MTK SCANE6)\$549.99

Minolta Quick-Scan35 Film Scanner (MIN QSCAN35MAC)\$999.99

Epson Expression 636 Artist Scanner (EPS 636-AMAC)\$1299.99

Software • Software • Software • Software • Software • Software • Software • Software



\$99⁹⁹

Aladdin Stuff It Deluxe (4.0)\$64.99
Apple (AFP M16ABZ/C) Japanese Language Kit (1.2)\$139.99
Berkeley After Dark (4.0)\$29.99
Casady & Greene Conflict Catcher (3.1)\$59.99
Claris Organizer (2.0)\$69.99
Connectix RAM Doubler (2.0)\$54.99

J&R COMPUTER WORLD

One of America's Largest Authorized Apple Dealers

iomega Zip™ Drive

•Unlimited storage on inexpensive, removable 100MB disks •Includes SCSI cable, 100MB disk

\$199⁹⁹
(BER ZIP100SCSI)

plus \$50 mail-in Rebate, or Game Pack-to-Go Offer!

Zip™ Disk 10-Pack

•Each disk holds 100MB (200MB with compression)

\$149⁹⁹
(BER ZIP100SCSI)

plus \$20 mail-in Rebate, or Not Stuff Organizer Offer!

External Modems



Zoom V34XPlus

•Blistering 33.6Kbps fax/modem (V.34) •Connects to serial port •LED indicators •ZoomGuard™ lightning protection •Includes MicroPhone and STF StartFaxing

\$129⁹⁹ (ZOP 2837)

Motorola 28.8 ModemSURFR (MOT MAC288SURF)\$119.99

Boca V.34, 28,800/14,400 bps (BOC MV34MA)\$129.99

U.S. Robotics Sportster™/Speakerphone (USR EX288MACVC)\$139.99, after \$40 mail-in rebate (rebate offer expires 3/31/97)

PCMCIA Modems



Motorola Montana

PCMCIA 28.8 Fax/Modem
•28.8 (V.34) modem and 14.4 fax
•Paging and cellular compatibility
•For Apple PowerBook 1400 series

\$199⁹⁹ (MOT PCMCMTMAC)

Megahertz 28.8 CruiseCard Modem with XJack Phone-line Connection, for Apple 190/5300 PowerBooks (MHZ XJA3288)\$219.99

Global Village PowerPort Platinum 28.8/14.4 PCMCIA Modem (GLV PCMCAPLTM)\$269.99

SyQuest syjet



SyQuest syjet 1.5GB

External Hard Drive with Removable Disk Cartridge
•1.5GB capacity per cartridge for virtually limitless, flexible storage
•12ms seek time •Connects via SCSI port •Includes one syjet cart

\$499⁹⁹ (SYQ SYJET1SE-09)

SyQuest 1.5GB Cartridge (Formatted) (SYQ SYJET-005)\$124.99

SyQuest 1.5GB 3-Pack (Formatted) (SYQ SYJET-006)\$319.99

SyQuest 1.5GB 5-Pack (Formatted) (SYQ SYJET-007)\$519.99

Digital Cameras



Kodak DC20

Digital Science™ Camera
•Records photographic images in digital memory, then images are down-loaded to computer •Shirtpocket size •1MB storage •24-bit color •Focus-free lens

\$199⁹⁹ (KOD DC20)

Connectix Color QuickCam (CIM CQCM)\$199.99

Casio QV-10A plus (CAS QV10A+)\$399.99

Kodak Digital Camera 50 (KOD DC50)\$699.99

SyQuest EZ-Flyer



SyQuest EZ230

EZ-Flyer Removable 230MB SCSI Drive
•230MB capacity per disk
•13.5ms access; 2.4MB/sec. data
•Includes one 230MB cartridge, SCSI cable, and power supply

\$294⁹⁹ (SYQ EZ230EXTMAC)

SyQuest 230MB 3-Pack (Formatted) (SYQ 230MB3PKMAC)\$79.99

SyQuest 230MB 5-Pack (Formatted) (SYQ 230MB5PKMAC)\$124.99

SyQuest 230MB 10-Pack (Formatted) (SYQ 230MB10PKMAC)\$239.99

Adesso Keyboards



Adesso AEK-305

Soft Touch Plus Extended Keyboard
•105 silent, high quality, full stroke mechanical keyswitches •2 extra ADB ports •Keyboard-length wrist pad •One-year warranty

\$44⁹⁹ (AEO AEK-305)

Adesso AM-3 PowerMouse (AEO AM-3)\$24.99

Adesso Tru-Form Keyboard (AEO AEK-606)\$79.99

Adesso Tru-Form Keybd w/Pointer (AEO AEO-806)\$89.99

Carry Cases



Targus CN01

Black NotePac Case
•The perfect case to hold your PowerBook •Rugged construction
•Provides room for unit, cables, power supply, and floppy disks

\$34⁹⁹ (TAR CN01)

Targus CUN1 universal laptop bag (TAR CUN1)\$59.99

Targus CCB1 convertible Backpack (TAR CCB1)\$69.99

Targus CLN1 genuine leather bag (TAR CLN1)\$84.99

Video Cards



Truevision Bravado 1000

Pro Digital Video Editing Card for PCI PowerMacs
•24-bit true color capture •Full screen video capture at 50/60 fields per second •Comes with Adobe Premiere (4.2) full version

\$579⁹⁹ (TRU BRAVADOMAC)

ATI Xclaim VR with 4MB SGRAM (ATI 4MBXCLAIMVR)\$299.99

Radius Thunder 30/1600 (RAD THUND301600)\$699.99

miroMOTIONDC20 Pro Video Editor (MRO MOTIONDC20)\$699.99

Monitors



Panasonic PanaSync 517

17" Digital Color CRT Display
•16" viewable screen •0.27mm dot pitch •1,280 x 1,024 max res
NI •MPR-II •DQ-QAF electron gun
•Three-year parts/labor

\$649⁹⁹ (PAN 517)

Panasonic PanaSync Pro 15" Monitor (PAN P15) requires adapter\$399.99

Panasonic PanaSync 21" Monitor (PAN S21)\$1599.99

Panasonic PanaSync Pro 21" Monitor (PAN P21)\$1899.99

Order Your Free Catalogue Now!

J&R COMPUTER WORLD

Apple PowerBook 1400C/117
•117MHz •16MB RAM
•1-Gigabyte Hard Drive •11.3" TFT Color LCD •6x-Speed CD-ROM Drive •NIMH Battery
\$3499⁹⁹

Apple Performa Desktop 6360/160
•160MHz •16MB RAM •1.2GB Hard Drive •8x-speed CD-ROM Drive •High-speed Internet Access •Requires Monitor
\$1499⁹⁹

To Order Toll Free and Receive a Free Catalogue MAIL ORDER: J&R Computer World,

800-221-8180

24 Hours, 7 Days, Anywhere In The USA or FAX us at 1-800-232-4432

Dept. MW0497, 59-50 Queens Midtown Expressway
Maspeth, New York 11378

Not responsible for typographical or pictorial errors. Some quantities may be limited.
All merchandise brand-new, factory-fresh and 100% guaranteed!

Circle 282 on reader service card

MACWORLD April 1997 153

FREE
CATALOG!

BEST Service!



10,000
HOT PRODUCTS
24 HRS A DAY!



BEST PRICES
ON POWERBOOKS!

YOUR #1 SOURCE
FOR MOBILE COMPUTING SOLUTIONS!

FREE!

Technical Support!

FREE

System Customization Overnight!

FREE

Catalog Subscription!

FREE

Memory Installation Offer!

MORE
Exciting Bundles!

MORE
Hot New Products!

ALWAYS
Open!
24 hrs. a day

ALWAYS
Available!
Knowledgeable sales reps ready to help you.

NEW!
Alien Eye Candy 3.0
Create special effects in seconds. Some of the new filters include: Fire, Fur, Chrome, Polygon, Anti-Matter, Vibrate, Warpo and Water Drops.
35801 **ONLY! \$119.95**

Macworld 1997 World Class
Barebones BBEdit 4.0
If you're serious about features like HTML keyword and syntax coloring, spell and syntax checkers, and direct editing of text files on remote FTP servers, get serious about BBEdit.
35397 **ONLY! \$99.95**

MAC CONNECTION EXCLUSIVE!
M.Y.O.B. with Payroll
consistently rated #1 for small business accounting. Includes Free Now Up-to-Date Contact Management Software.
34597 **ONLY! \$139.95**

NEW!
NEATO CD Labeler Kit
If you produce your own CDs, you'll definitely want this labeling kit. Great for multimedia, backups, updates, data storage, photo libraries and more.
32395 **ONLY! \$69.95**

HOT BUNDLE!
QuickBooks
Let QuickBooks put you in control, showing you exactly what's going on in your business. *Get QuickBooks Business Law Partner FREE (a \$29.95 value) when you buy QuickBooks 4.0.
36299 **ONLY! \$119.95***

NETWORK!
Network Your PowerBook 1400!
• Low Power sleep mode when unplugged
• AppleTalk and Open Transport auto sensing drivers
• High performance 10 Mbps Ethernet Controller
34643 **ONLY! \$99.95**

NEW VERSION!
Mac OS 7.6 w/ Apple Internet Connection Kit
• Most powerful Internet integration ever
• Uses cutting-edge Apple Technology to keep you ahead
UPGRADE \$69*
*proof of System 7.5.x ownership required
37345

Smart & Friendly CD-R 2006/PRO - Internal 2X/6X
(not pictured)

Worthy of PC Magazine Editor's Choice award, this is the perfect choice for backing up all your data.
36788 **INTERNAL \$399**
36789 External 2X/6X... **ONLY \$499**

TelePort 33.6 Speakerphone Edition
*After \$50 Rebate

Get connected to the rest of the world! Combines a high speed 33.6 Kbps voice/fax/modem with a full duplex speakerphone so you can work at your Mac and have crystal clear hands-free communication at the same time.
33231 **\$199.95***

Protect Your PC & Peripherals! Back-UPS Office 250

• Multi-outlet surge protection
• RJ11 protection for Internet and remote users
• 10BaseT network data line protection
31041 **ONLY \$139.95**

Claris Home Page for Mac 2.0
If You Can Drag and Drop, You Can Build a Web Page!

With Claris Home Page, there's no need for complicated HTML coding. You can even just drag and drop data from your spreadsheet, word processing or database file, and Claris Home Page automatically creates a table.
36051 **ONLY \$79**
*Price after \$20 competitive upgrade rebate

Sony Zip Disk 6-Pack with FREE Holder
35387
Back up and Store with Confidence!
FREE Zip Disk Drive Holder with 6-Pack!
\$79.95*
SONY
*Price after manufacturer's rebate

ATI Xclaim VR 4
3D Gaming & Multimedia Solution
• Arcade-style, big-screen gaming
• Awesome QuickDraw 3D acceleration
• QuickTime capture, video-out capabilities
34428 **ONLY \$299.95**

Epson Stylus Color 500 Ink Jet Printer
• 720x720 dpi color and True black resolution on plain paper ~ 360 dpi in fast mode
• Fast print speeds - up to 4ppm for black, with print spooling so you can keep working while you print
31821 **ONLY \$279**
FREE Adobe PhotoDeluxe & HomePublisher!

webtv **HOT!**
36634 **ONLY \$329.99**
Philips-Magnavox Web TV
Introduce your family to a whole new world: World Wide Web access through your television. Simply hook it up to your television and phone line and let WebTV help you get the most from the Internet.
• Surf by Remote Control
• Parental Control
• One button Internet Access
• Easy Hook-up
• Email

Imega Zip 100 SCSI
• 3 Drives in 1
• Unlimited storage potential at 100MB a disk!
• Hard drive-like performance!
• Weighs just about 1 pound!
• Free Zip Tools software - \$100 value!
19171 **ONLY! \$149.95***
*After \$50 rebate. Expires 3/31/97

Nikon ScanTouch AX110
35820 **ONLY \$299**
• Accurate 24-bit color (8-bits per color R, G, B)
• Includes FREE Pantone Color Web Software
• Fast single-pass scanning of images up to 8.5" x 11.7"

Metatools Kai's PowerTools 3.0
Includes more than 200 new features and improvements. Generate QuickTime texture backgrounds, create up to a thousand 3D raytraced spheres at a time, or apply famous effects like Page Curl.
35285 **ONLY \$124.95**
BONUS! FREE KPT Convolver!

"Best Mail-Order Company!"



MacConnection was awarded "Best All Around Company" for the second year in a row by The Boston Computer Society!



The highly regarded Berkeley Mac Users Group (BMUG) named MacConnection the Best Mac Mail-Order Company.

OUR POLICY • VISA, MASTERCARD, AMERICAN EXPRESS, and NOVUS cards. No surcharge. • Most products are covered by manufacturer's warranty against defects for at least 30 days from the invoice date. • All returns require prior authorization; please call for an RMA. • We are not responsible for typographical errors. • Pricing and promotions are subject to change without notice. **Continental U.S.:** Shipping Charges: \$5 per order up to 10 pounds. On orders weighing 10 pounds or more, shipping is \$1 per pound. Please call for weight/shipping charge information. Items of excessive size and/or weight may require additional days to deliver via a freight carrier. Please check with

your sales rep for more details. Barring events beyond our control, all credit card orders placed in weekdays by 3 a.m. ET will ship Airborne Express for delivery the next business day. Saturday delivery available to many areas upon request at no additional charge. Order all day Saturday thru noon Sunday for Monday delivery. Some areas require an extra day delivery. **AP/FPO, International orders and Hawaii, Alaska, Canada, Puerto Rico & U.S. Virgin Islands:** Shipping may require additional time and charges. All other areas: Call 800-445-4444 or FAX 603-445-7791 M-F 9 a.m.-5:30 p.m. ET.

©1996 PC Connection, Inc., Marlow, NH. MacConnection & the raccoon characters are registered trademarks of PC Connection, Inc. All other trademarks remain the property of their respective companies.

LOWEST Prices!

EVERYTHING
OVERNIGHT®
\$5!
(up to 10lbs)

www.macconnection.com

Now shop on-line with a name you can trust!

- Search our 10,000+ product database
- Access daily price updates on all products
- Link to other valuable resources and manufacturers

SAVE
ask about...
LEASING
OPTIONS
for BUSINESS
CALL FOR DETAILS

HOTTEST DEALS!
ON APPLE® PERFORMAS,
POWER MACS & POWERBOOKS!

C500L Desktop

UMAX
Computer Corporation

1MB
VideoRAM!

- 160MHz
- 16MB RAM
- 1.2GB HD
- 8X CD-ROM
- 28.8 Faxmodem

ONLY
\$1299

32617

Monitor Sold
Separately

**THE
BEST
PRICES
ON
MACS!**

CALL US FIRST!

800-800-MACs



STARMAX 3000MT

MOTOROLA

Nobody's Prices Are Lower!
When You Need Even More Power...
Featuring the fastest processor
available—the 240MHz 603e, these
immensely upgradeable MiniTowers,
give you full workstation performance
at industry-low prices. With 32MB of
RAM, 32K of internal cache, and 256K
Level 2 cache, running several
high-end applications at once is not
only possible, it's fast.

LEASE
\$65.78

AS LOW AS
\$1895

35701 3000/180MT, 32MB RAM \$1895
35702 3000/240MT, 32MB RAM 2795

Monitor sold
separately

SYQUEST EZFlyer

230MB
Removable
Drive!

The Perfect Answer
to Your Data Storage Needs!
• 13.5ms average seek time
• Up to 2.4MB/second
sustained transfer

ONLY
\$234*

30645

*Price after \$55 rebate
Expires 3/31/97

FREE!

**MEMORY
INSTALLATION!**

SUPER LOW SIMMS!

4MB	8MB	16MB	32MB
as low as \$24.95	as low as \$49.95	as low as \$99.95	as low as \$199.95

Purchase a computer & memory upgrade together and we'll install your new memory upgrade at no extra charge!



MacPicasso 320

**Turbo Charge
Your Monitor!**

ONLY
\$299.95

35586

- Accelerated Cirrus graphics controller
- 2MB 50ns-EDO-DRAM
- B/W, 256, thousands, and millions color modes
- Dual connectors (Apple and VGA 15-pin)
- QuickDraw accelerator

**Break the Sound and
Motion Barrier!**

ONLY!
\$799



33623

It's Multi-Everything!!

Store up to 38 still images, 19 still images
with 10 seconds of sound each, or about
8 minutes of sound alone. Enjoy five
recording modes plus the ability to output
to TV, LCD monitor, or video printer.

† Leasing option available to businesses. CALL 800-800-0014 to see if you qualify.

FREE!

**CATALOG
SUBSCRIPTION!**

**CALL
TODAY!**

(Mention source code 497MW)

☐ MacConnection ☐ PC Connection
Please check the catalog(s) you wish to receive

Name _____ Apt _____
Address _____
City _____ State _____ Zip _____



MacConnection®

MACUSER 497MW • 800-998-0067

Circle 145 on reader service card

Order as late
as 3 a.m. ET
and still get
Overnight Delivery!

FAX US AT:
603-446-7791





MacWARE

We carry over 6,000 products for your Mac! Plus

100% MAC-OS COMPATIBLE
SUPER SYSTEMS!



MOTOROLA



Monitor sold separately.

Limited Time!
While supplies last!

StarMax 3000/160
160MHz PowerPC, 16MB RAM,
1.2GB hard drive, 8X CD-ROM

only \$1499!

Ask for item # CPU 0447

AS LOW AS
\$1499!
Includes
28.8 Modem!

StarMax 3000/180

180MHz, 16MB RAM, 1.2GB hard drive,
8X CD-ROM/28.8 modem

\$1599

Ask for item # CPU 0538

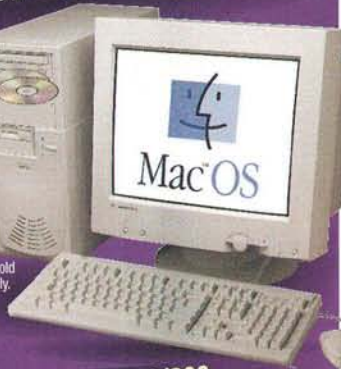
StarMax 3000/180 Mini-tower

180MHz, 32MB RAM, 2.5GB hard drive,
8X CD-ROM/28.8 modem

\$1899

Ask for item # CPU 0537

Monitor sold separately.



StarMax 3000/200

200MHz, 16MB RAM, 1.2GB hard drive,
8X CD-ROM/28.8 modem

\$1999

Ask for item # CPU 0449

StarMax 3000/200 Mini-tower

200MHz, 32MB RAM, 2.5GB hard drive,
8X CD-ROM/28.8 modem

\$2199

Ask for item # CPU 0450

GET Marathon Infinity FREE!

when you buy a
12X CD-ROM Drive
for only **\$249⁹⁵**



Ask for item # BND 1785



WHILE SUPPLIES LAST!

UPGRADE TO Microsoft Office 4.2.1

FOR ONLY

\$269⁹⁵

Ask for item # SID 0385



PLUS!
Essential tools
for small
business

Microsoft Office: BUS 1015...\$449.95

3 Ways to Order:

1. Call: 1-800-725-1450
2. FAX: 1-908-905-9279
3. MacWAREHOUSE is now on the



<http://www.warehouse.com>

- ✓ Hundreds of shareware and demo titles for you to download!
- ✓ Latest information on the newest products!

1. Our customer service staff is ready to take your order 24 hours a day, 7 days a week.
2. We accept the following major credit cards: Visa, MasterCard, Discover Card/NOVUS, AmEx. Your credit card will not be charged until each item is shipped (no surcharge).
3. CT, IL, NJ, and OH residents add applicable sales tax.
4. Shipping charge for orders under 5 lbs. is \$3.00. Orders over 5 lbs. are \$1.25 per pound or fraction thereof.

5. Place your order for "in-stock" items up to 12:00 midnight (E) (weekdays), and we will ship same day for overnight delivery (barring system failure, etc.).
6. Many of our products come with a 30-Day Money Back Guarantee. All items we sell come with the MacWAREHOUSE 30-Day Guarantee Against Defects.

© Copyright 1997 Micro Warehouse, Inc. MacWAREHOUSE® is a division of Micro Warehouse, Inc. MacWAREHOUSE® and MicroWAREHOUSE® are registered trademarks and Data Comm WAREHOUSE and MacSystems WAREHOUSE are trademarks of Micro Warehouse, Inc. Apple, the Apple logo, Mac and Macintosh are registered trademarks of Apple Computer, Inc. Item availability and price subject to change without notice. We regret that we cannot be responsible for typographical errors. All prices shown in U.S. dollars.

NEW! FM TUNER

LACIE LIMITED

Connects to your ADB port so you can play your favorite FM radio stations on your Mac!

only **\$49⁹⁵**

Ask for item # INP 0969

Upgrade to NEW PAGEMAKER 6.5

for only **\$99⁹⁵**



Convert your files easily to HTML!

Ask for item # UPG 0560

Trade-up from QuarkXPress for only \$129.95! Ask for item # SID 0381. Mail or fax us the title page of the user manual or a photocopy of the original program disk.

17" COLOR DISPLAY

ONLY \$449!



Ask for item # MON 0378

15.8" viewable display area, resolutions up to 1024 x 768
PowerUser

Adobe PageMill 2.0

UPGRADE FOR ONLY **\$49⁹⁵**

Ask for item # BND 1554

PLUS FREE* Web Graphics from PhotoDisc!

*PhotosDisc WebGraphics shipped in promotional packaging on CD-ROM. Serial number required at time of order. Offer good while supplies last.

RAM Doubler 2

Upgrade For Only **\$29⁹⁵***

Ask for item # UTI 0986

After \$25 mail-in upgrade rebate.

*Price reflects \$25 publisher's mail-in upgrade rebate for previous owners. Price before rebate is \$54.95.

APPLE HARD DRIVES

2GB AS LOW AS

\$499

Interchangeable foot pads make it easy to use vertically or horizontally!

2GB drive: DRI 1338 \$499
3GB drive: DRI 1658 \$599
4GB drive: DRI 1828 \$999



PHOTOSHOP 4.0

Upgrade only **\$149⁹⁵**



with **FREE Startup Manager 7.0.1**

Easily manages your Photoshop Plug-ins! Shipped in promotional packaging.

MACWAREHOUSE®

FREE!

WITH ANY PURCHASE
Marathon 2: Durandal

WHILE SUPPLIES LAST!

Ask for item# AAA 0442. *You pay only \$2.95 shipping and handling. While supplies last. Shipped in promotional packaging on CD-ROM.

a full line of Macintosh™ and Mac OS computers!

Upgrade WAREHOUSE!

SAM 4.5 Upgrade Ask for item # UPG 0585 Proof of ownership required.	\$39⁹⁵
Speed Doubler 2—Upgrade Ask for item # UTI 1052 *Price after *25 Manufacturers mail-in upgrade rebate for previous owners. Price before rebate is \$54.95.	\$29⁹⁵*
Adobe Illustrator 6.0 Upgrade from 5.0 Ask for item # UPG 0222 (CD-ROM)	\$99⁹⁵
Claris FileMaker Pro 3.0 Upgrade Ask for item # UPG 0231	\$99⁹⁵
Macromedia Director 5 Upgrade Ask for item # UPG 0248 (Mac CD-ROM)	\$369⁹⁵
Macromedia Director Multimedia Studio 2 Upgrade Ask for item # UPG 0249 (Mac CD-ROM)	\$468⁹⁵
Microsoft Office 4.2.1 Upgrade Ask for item # UPG 0237	\$269⁹⁵
Symantec Norton Utilities 3.2 Upgrade Ask for item # UPG 0210	\$39⁹⁵

***DeskWriter 600**
B&W: 600dpi! Color: 300 x 600dpi!
\$149⁹⁵
Ask for item # INP 0542
COLOR Ready!
*Color printing requires optional color kit—Only \$39.95. Item # PA 0078

28.8 v.34
TelePort Platinum Fax/Modem only **\$99⁹⁵**
While Supplies Last!
Ask for item # BND 1787

Jam-packed with 12 FREE software titles!
1-Year On-Site Warranty
Mac OS
Monitor not included.
UMAX Computer Corporation

SuperMac C500 Item # CPU 0476...**\$1299***
*Price reflects a \$50 mfr's mail-in rebate. Price before rebate is \$1349. Rebate coupon in box. Offer exp. 2/28/97.

SuperMac C600
180MHz/603e/1.2GB/16MB/8X CD
Item # CPU 0555...**\$1599**
Item # CPU 0479 (with 28.8 modem)...**\$1699**
200MHz/603e/2.1GB/16MB/8X CD
Item # CPU 0556...**\$1899**
Item # CPU 0478 (with 28.8 modem)...**\$1999**
240MHz/603e/2.1GB/24MB/8X CD
Item # CPU 0554...**\$2199**
Item # CPU 0533 (with 28.8 modem)...**\$2299**

SuperMac C500
160MHz
PowerPC
only **\$1299***

- ✓ 160MHz PowerPC 603e Processor!
- ✓ 16MB RAM (expandable to 144MB!)
- ✓ 8X CD-ROM Drive!
- ✓ 1.2GB Internal Hard Drive!

i JAZZ DRIVE
Store up to 1GB on one 3.5" cartridge!
\$499⁹⁵ includes your first 1GB cartridge!
Ask for item # DRI 1119
*Jaz Tools Utility Software Included on first cartridge.

1GB Jaz Cartridges
Ask for item # MED 0177
1-4 carts. 5-9 carts. 10+carts.
\$124.95 ea. \$99.95 ea. \$89.95 ea.

Music Tracks for Multimedia and the Web!
DirectLOOPS and InterLOOPS!
SAVE OVER \$60 when you buy BOTH!
300 license-free music tracks for multimedia, presentations, and the Web!
DirectLOOPS: 16-bit stereo loops of 22K each. MUS 0457 (CD-ROM)...**\$129.95**
InterLOOPS: Same 300 tracks in 8-bit mono, 11K each. Small file size is ideal for the Internet. MUS 0456 (CD-ROM)...**\$129.95**
DirectLOOPS & InterLOOPS Together MUS 0458 (CD-ROM)...**\$198.95**

SIMMs as low as **\$19⁹⁵**
1MB 30-pin 80ns SIMMs
Ask for item # CHP 0022

Get a Power User's Tool Kit®
FREE! with every order!
Demo loads of powerful programs for FREE—some authors ask that you pay a small fee (\$8-\$25). The Power User's Tool Kit is FREE when you order from MacWAREHOUSE. You pay only \$2.95 shipping and handling. If you would like the disk, please ask for item # AAA 0462. All programs work with System 7.

To order, call toll-free 24 hours a day, 7 days a week
1-800-725-1450

FREE CATALOG SUBSCRIPTION! Check the appropriate box(es) to receive your FREE 1-year catalog subscription(s) and mail this coupon to: 1720 Oak Street, P.O. Box 3013, Lakewood, NJ 08701

Name _____
Address _____ Apt. _____
City _____ State _____ Zip _____
(Expect to receive your first issue(s) within 4-6 weeks.)

- ☐ Yes, send me my FREE Power User's Tool Kit. Enclosed is my check for \$2.95 to cover shipping & handling. **MMU7**
☐ MacWAREHOUSE ☐ MicroWAREHOUSE ☐ DataComm WAREHOUSE ☐ MacSystems WAREHOUSE ☐ MicroSystems WAREHOUSE

For your FREE Canadian Catalog, call toll-free 1-800-603-5139!

FREE CATALOG!



Circle 150 on reader service card

APS TECHNOLOGIES: 3 GIG POWERHOUSE FOR ONLY



APS Q 3200

\$399⁹⁵ Internal configuration

- ✓ 3GB for the price of 2GB
- ✓ Works on SCSI-2 and Ultra SCSI buses
- ✓ 4500 rpm mechanism

2GB is too little, 4GB is too much. The APS Q 3200 is priced lower than some 2GB SCSI drives! MR heads and an advanced PRML read channel are standard in this 3.5" low profile Ultra SCSI drive.



APS is now bundling Nisus® Writer 4.1 at no extra charge with all of its formatted hard drives and M•POWER systems.

JUST THE RIGHT CAPACITY! APS Q 2100

- ✓ MR heads, PRML and Ultra SCSI Technology
- ✓ Reliable 4500 rpm mechanism
- ✓ Works on SCSI-2 and Ultra SCSI buses



Give your Mac the extra storage space it needs by installing the new APS Q 2100. At only 16¢ per MB internal, the APS Q 2100 is the value leader in 2GB SCSI hard disk drives. Its performance is a great match with any application, and it is backed by a 3-year warranty.

BEST VALUE IN CD-R! APS CD-R

- ✓ 2X record, 6X read mechanism
- ✓ Creates backup and play!



2X recording and 6X CD-ROM playback, makes the drive ideal for creating multimedia CDs or backing up a hard disk drive at double speed. The APS CD-R includes your choice of Toast, Discrite mastering software or Retrospect backup software.

OUTSTANDING SYSTEM VALUES!

APS M-POWER 603e160™

- ✓ 160MHz Motorola® PowerPC 603e processor
- ✓ 1.2GB hard drive
- ✓ 8X CD-ROM
- ✓ 16MB of DRAM



\$1299

ASK ABOUT OUR NEW
5 YEAR
EXTENDED WARRANTY
OPTION



APS M-POWER 603e200™

- ✓ 200MHz Motorola® PowerPC 603e processor
- ✓ 1.2GB hard drive
- ✓ 8X CD-ROM
- ✓ 16MB of DRAM & 256K L2 Cache

603e160 & 603e200

- 2-5.25" Half Height Internal Bays
- 2-3.5" Low Profile Internal Bays
- 3-PCI Expansion Slots
- 2-SVGA Monitor Port
- SCSI Port
- 2-PS/2 Ports
- IDE Bus
- 16-bit Sound Output Port
- Supports 14", 15", 17" & 21" Monitors
- Rear Headphone Jack
- Microphone Jack
- INCLUDES: 8X CD-ROM, 16MB DRAM, 1.2GB HD, Floppy Drive, 1MB VRAM, Desktop Case, ADB Keyboard & Mouse, 2-Year Limited Warranty

\$1599*

*Monitors are not included.

Filling all available drive bays may exceed power limitations.

APS DESKTOP DRIVES

Model	Capacity	Internal	SR2000
APS Q 1280 Quantum Fireball TM	1222MB	\$249 ⁹⁵	\$299 ⁹⁵
APS Q 2100 Quantum Fireball TM	2000MB	299 ⁹⁵	379 ⁹⁵
APS Q 3200 Quantum Fireball TM	3000MB	399 ⁹⁵	479 ⁹⁵

- 30-day money-back guarantee on all APS brand drives and accessories. Your risk is the cost of shipping. 30-day money-back guarantee does not apply to M•POWER systems. Two year limited warranty on M•POWER systems. Monitors carry a separate warranty from their respective manufacturers.
- SCSI cables sold separately.
- Drive-for-Drive Repair or Replacement Warranty. APS will, at its discretion, replace or repair products found to be defective according to the terms of this product's warranty.
- Refused orders subject to 20% restocking fee.
- International customers must pay for all shipping charges.
- Listed capacities are formatted.
- Actual data compression and tape capacity vary greatly depending on the type of data recorded, other system parameters and environment.
- Prices and specifications are subject to change without notice.
- You need to install system software appropriate to your machine before using our hard drives.
- Not responsible for typographical errors.
- © 1997, Alliance Peripheral Systems, Inc. All Rights Reserved.

APS HIGH-PERFORMANCE DRIVES

Model	Capacity	Internal	SR2000	APS Pro
APS WD 4300 4200MB Western Digital Enterprise	4200MB	\$1099 ⁹⁵	\$1099 ⁹⁵	\$1199 ⁹⁵
Ultra/Wide available for an additional \$100.00				
APS Q 4300 Quantum Atlas II 7200 rpm	4341MB	999 ⁹⁵	1049 ⁹⁵	1099 ⁹⁵
Ultra/Wide available for an additional \$100.00				
APS MS 4300 4240MB Micropolis 4345 7200 rpm	4240MB	999 ⁹⁵	1049 ⁹⁵	1099 ⁹⁵
Ultra/Wide available for an additional \$100.00				

Motorola, and Motorola logo are registered trademarks of Motorola, Inc. PowerPC is a trademark of International Business Machines Corp. and is used by Motorola, Inc. under license from International Business Machines Corp. Mac OS is a registered trademark of Apple Computer, Inc. M•Power, APS and APS Technologies are registered trademarks of Alliance Peripheral Systems, Inc. Other brand or product names are registered trademarks or trademarks of their respective holders.

Prices and specifications are subject to change without notice. Computer case may not exactly match images shown.

APS HIGH-PERFORMANCE DRIVES

Model	Capacity	Internal	SR2000	APS Pro
APS Q 9000 Quantum Atlas II 7200 rpm	8682MB	\$1799 ⁹⁵	\$1849 ⁹⁵	\$1899 ⁹⁵
Ultra/Wide available for an additional \$100.00				
APS MS 9000 Micropolis 3391 7200 rpm	8669MB	1799 ⁹⁵	1849 ⁹⁵	1899 ⁹⁵
Fast/Wide available for an additional \$100.00				

PCI Ultra SCSI Host Adapter for Mac Adaptec PowerDomain™ 2940UW

- Get the most from your Ultra SCSI capable drives
- Installs in seconds, transparent operation
- Combines Fast, Wide, and Ultra SCSI on a Mac PCI bus
- Supports transfer rates as high as 40MB/sec. on SCSI-2 bus



106428 **\$299⁹⁵**



Visa, MasterCard, Discover, American Express: No Surcharge
Same day shipping available for personal checks (Restrictions apply)

THE NAME TO REMEMBER IN MAC COMPATIBLE PRODUCTS



**4 X BETTER THAN A 8X
CD-ROM!**

APS CD CHANGER

- ✓ Quadruples your CD-ROM storage capacity
- ✓ Space-saving half-height design
- ✓ Direct loading mechanism eliminates trays & caddies

Meet your needs for larger CD-ROM storage capacity with the new APS CD Changer. It is a four-disk CD-ROM changer which operates at 8X speeds, making it an excellent match with high-end multimedia and data archiving applications. The APS CD Changer switches discs at the click of a mouse and uses a trayless loading and unloading design.

HIGH PERFORMANCE SYSTEMS!

APS M-POWER 603e240™

- ✓ Speedy 240MHz PowerPC 603e processor
- ✓ 2.5GB hard drive & 8X CD-ROM
- ✓ 24MB of DRAM, 1MB of VRAM
- ✓ 256K of Level 2 Cache

\$1999*

APS M-POWER 604e200™

- ✓ Blazing fast 200MHz PowerPC 604e processor
- ✓ 2.5GB hard drive & 8X CD-ROM
- ✓ 24MB of DRAM, 2 MB of VRAM
- ✓ 512K of Level 2 Cache

\$2399*

*Monitors are not included.



603e240 & 604e200

- 3-5.25" Half Height Internal Bays
- 5-3.5" Low Profile Internal Bays
- 5-PCI Expansion Slots
- SCSI Port
- Supports 14", 15", 17" & 21" Monitors
- SVGA Monitor Port
- 2-PS/2 Ports
- 16-bit Sound Output Port
- Rear Headphone Jack
- Microphone Jack
- 8X CD-ROM
- 24MB DRAM
- 2.5GB HD
- Floppy Drive
- ADB Keyboard & Mouse
- 2-Year Limited Warranty
- Mini-Tower Case

INTERFACES

• Printer Port

• Modem Port

• ADB Port

• IDE Bus

ASK ABOUT OUR NEW
**5 YEAR
EXTENDED WARRANTY
OPTION**

*Filling all available drive bays may exceed power limitations.

PERSONAL TAPE BACKUP

APS HyperQIC™

- ✓ Transfer rates as high as 30MB per minute
- ✓ Backward compatible with many QIC and Travan formats

Our HyperQIC drive uses Travan 4 tape cartridges to deliver up to 4GB on a single tape without compression!



FORGET 4X, SKIP THE 6X!

APS CD12

- ✓ High performance 12X CD-ROM drive
- ✓ Great for home and office CD-ROM use

The 12X performance of the new APS CD12 supercharges any CD-ROM application! At this incredibly low price, you can hardly afford to live with that old 2x or 4x CD-ROM drive!

YOUR CHOICE
internal or external*



*External configuration comes in slimline enclosure and does not include DTerm®

APS QIC & DAT BACKUP SYSTEMS

Model	Capacity/Awards	Internal	SR2000
APS HyperQIC™	8GB		
Travan 4 Conner QIC 3095		\$349.95	\$399.95
APS HyperDAT®	8GB		
DDS-2 DC		749.95	799.95
APS HyperDAT® Pro	8GB		
DDS-2 DC		849.95	899.95
APS HyperDAT® III	24GB		
DDS-3 DC		1249.95	1299.95

APS MO DRIVES

Model	Capacity/Features	SR1000	SR2000
APS 230 MO	Up to 217MB	\$299.95	\$379.95
APS 640 MO	New 2MB Cache		549.95
APS 2.6GB MO	4MB Cache		1699.95

APS REMOVABLE DRIVES

Model	Capacity	SR 1000	SR 2000
APS M540 (with 1 cartridge)		N/A	\$299.95
APS M540 (with 4 cartridges)		N/A	449.95
APS SQ 5200 (200, 88, 44MB compatible)		N/A	399.95
APS Jaz (with a cartridge)	1GB	499.95	499.95
APS Jaz (with 3 cartridges)	1GB	599.95	599.95

Xclaim 3D Graphics Accelerator Card

- Supports QuickDraw 3D RAVE
- Up to 6x faster than a Power Mac 9500 using QuickDraw 3D

106634	4MB	\$329.95
106635	8MB	449.95

APS CD-ROM DRIVES

Model	Capacity/Awards	External
APS CD12	12X CD-ROM in Slimline case	\$179.95
APS CD12	12X CD-ROM in SR 2000 case	279.95
APS PD4	650 Phase Change / 4X CD-ROM	399.95
APS CD Changer	8X 4 Disc CD changer	299.95
APS CD-R	2X record/6X read CD-R	499.95
APS CD-R Pro	4X4 performance CD-R in Pro Case	999.95
Retrospect	CD-R drop in driver (with drive purchase)	49.95

Copyright © 1997 APS Technologies

**CALL FOR YOUR
FREE
Winter 1997
CATALOG**



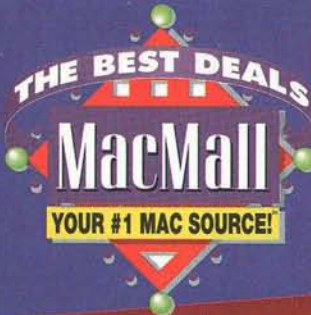
Call 800-945-4920

Visit our Web Page at <http://www.apstech.com/>
International Sales: (816) 920-4109

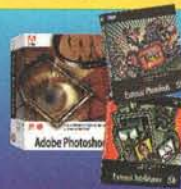
Circle 62 on reader service card

**APS
Technologies**

Call 800-945-4920 • 24 Hrs x 7 Days a Wk



Adobe Photoshop 4.0 Buy FileMaker Pro 3.0 Quicken/MacIntax Bundle



CD Upgrade with
FREE PhotoTools SE &
IntelliSense SE CD
While supplies last!
\$149⁹⁹
#84980



& Get Quicken Deluxe 7.0
& MacIntax Deluxe Final 97
for only '10* more.
\$209⁹⁹ #78337
*After \$30 mail-in rebate
rebate ends 4/15/97



Quicken Deluxe 7.0 &
MacIntax Deluxe Final 97 for
Mac **\$59⁹⁹** #89181
*After \$30 mail-in rebate
rebate ends 4/15/97

MacMall has it

MacMall Exclusive!
FREE DataSaver Backup Software
and FREE NetComplete Internet Kit

Iomega Zip Drive



100MB SCSI
Removable Drive
\$149⁹⁹ #90177
*Price after \$50 mail-in rebate.

Fuji Zip Disk - Mac Format as low as '11" #82229
*when ordered in qty. of 10 or more after
mail-in offer. Regular price \$19.99

MacMall Exclusive!
FREE DataSaver Backup Software
and FREE NetComplete Internet Kit

Iomega Jaz Drive

1GB Internal SCSI
Removable Drive



\$399⁹⁹ #90176

Jaz External SCSI 1GB (pictured) '499" #90174

UMAX

Vista S-6E Scanner
With Adobe PhotoDeluxe, Presto!
PageManager (w/OCR)



\$299⁹⁹ #81385

PowerComputing

PowerCenter 150

150MHz PowerPC 604
16MB RAM/ 1.0GB HD/8X CD
512K Cache/ Low Profile

\$2095! #89238 Monitor not included.



PowerCenter 166

166MHz PowerPC 604/16MB RAM
2GB HD/4X CD/512K Cache



\$2895! #80476 Monitor not included.
screenshot provided by PhotoDisc

PowerTower Pro 180

180MHz PowerPC 604e/16MB RAM
2GB HD/8X CD/8MB VRAM

\$3495! #89223 Monitor not included.
screenshot provided by PhotoDisc



MOTOROLA

StarMax 3000MT/240

240MHz PowerPC 603e
32MB RAM/ 2.5GB HD/8X CD
28.8 Modem/256K Cache



\$2799! #89269 Monitor not included.

StarMax 4000DT/160

160MHz PowerPC 604e/16MB RAM/
1.2GB HD 8X CD/512K L2 Cache

\$2299! #89244 Monitor not included.



StarMax 4000MT/200

200MHz PowerPC 604e/32MB RAM
2.5GB HD/8X CD/512K L2 Cache



\$3199! #89247 Monitor not included.

UMAX

SUPERMac C600/180

180MHz PowerPC 603e
32MB RAM/ 1.2GB HD 8X CD
Mini-Tower Case



\$1595! #89218 Monitor not included.

SUPERMac C900L/180

180MHz PowerPC 604e
32MB RAM/ 2.1GB HD
8X CD/ 512K L2 Cache
Full-Size Tower Case



\$3595! #89211 Monitor not included.

**ORDER
TODAY
GET IT
TOMORROW
by 10:30 a.m.
OPEN
24 Hours**

CD-ROM DRIVES

External 2X Write / 4X Read CD Recordable '479" #82911
CD Recordable Media '8" #68428
Pinnacle 4X4 External Optical 4X Read/Write
w/CD Burner Software '899" #85306
4.4X External SCSI CD-ROM '129" #88047

MONITORS

MAGInnoVision DX1495M 14" Color Display '249" #85921
Panasonic PanaMedia PM17 Multimedia Monitor '679" #87691
SuperScan 20" Color Display '1399" #71918

SCANNERS

PaperPort Vx for Mac '299" #76217
UMAX Vista S-6E w/Adobe PhotoDeluxe,
Presto! PageManager (with OCR) w/transparency adapter '419" #87821
UMAX Vista S-12 w/Adobe PhotoDeluxe,
Presto! PageManager (with OCR) '549" #86345
PowerLook 1 w/Photoshop 3.0, KPT SE &
FREE transp. adapter '999" #84924

MODEMS

PCMCIA 28.8Kbps Fax Modem '119" #86139
Teleport Internet Edition 33.6Kbps Fax Modem '168" #85232
Sportster 33.6Kbps Fax Modem '198" #79764

REMOVABLE

Vertex 2.6GB Removable Ext.Optical Drive with 1 disk '1495" #79648

SyQuest EZFlyer 230 Removable External SCSI
Drive for Mac* after \$55 mail-in rebate '244" #82063

PRINTERS

HP DeskJet 855Cxi Printer '389" #85621
HP LaserJet 6MP Printer '949" #83916
Elite XL 616 Printer '2699" #74309
Phaser 140 Color Printer '2599" #87634

SOFTWARE

UTILITIES

RAM Doubler 2.0 Mac* with \$25 mail-in upgrade rebate '24" #82525
SoftWindows 3.0 for Power Macintosh* CD '299" #79229
Spring Cleaning '49" #85741

GRAPHICS

FreeHand* Graphics Studio 7 Upgrade CD Mac* '189" #84730
Paser* 2 Upgrade Mac/PPC* NEW VERSION '68" #86718
Adobe* PageMaker* 6.5 CD Upgrade
w/FREE PageTools SE CD by Extensis Mac/PPC '99" #88274

BUSINESS

Clarisc Internet Edition w/ClariscWorks 4, Apple Internet
Connection Kit & Home Page 2.0 for only '99" #89404
Microsoft Office 4.2.1 CD Upgrade Mac/PPC*
with FREE Essential Tools for Small Business &
FREE F/A-18 Hornet Classic CD '269" #88575
Street Atlas 3.0/Phone Search 2.0 Value Pak CD
with \$20 mail-in rebate '38" #79852

Prices and specifications subject to change without notice. Limited to stock on hand.
IMPORTANT: While we do our best to check errors, mistakes may occur-Call to verify pricing.

**Norton Utilities 3.2/
RAM Doubler 2.0**

#86769 Bundle Offer!

\$98!

while supplies last

Quark XPress 3.3.2
With **FREE** StuffIt Deluxe 4.0.

#82393 While supplies last!

\$649!

Speed Doubler 2.0
Double your System's speed for only...

#86424

**FREE
CATALOG**
SEE BELOW

all...FOR LESS!

SUPER SYSTEM SAVINGS!

**CD-ROM
Recording System**

External SCSI CD Recorder
2X write speed, 4X read speed



\$499!
#81656
Blank Recordable CD 8" #66582

4X CD-ROM Drive

\$129!
#88047

12X CD-ROM Drive

Ext. SCSI,
100ms access,
1800kb/sec.
transfer rate
\$199!
#87873

**Express 33.6
Fax Modem**



\$89!
#88091
*Price after 10
mail-in rebate.

**HP DeskJet 855Cxi
Professional Color Printer**



Up to 7ppm
Black, 3ppm
Color!
\$399!
#85621

**540MB Ext.
SubSystem
Drive**



\$249!
#88871
*while supplies last

540MB Cartridge \$59 #81474

**COREL NEW Mega
Gallery CD**

50,000+ Vector
clip-art images,
60,000+ pictures
& over 1,000
fonts
\$64!
#89277

**UMAX[®]
SUPERMac C500/160**

160MHz PowerPC 603e
16MB RAM/1.2GB HD/8X CD
256K L2 Cache

\$1349!
#89217



**MOTOROLA
StarMax 3000 DT**

180MHz PowerPC 603e
16MB RAM/1.2GB HD/8X CD
28.8 Modem/256K Cache

\$1599!
#89267
Monitor not included. Screenshot provided by PhotoDisc

PowerComputing

PowerBase 180
180MHz PowerPC 603e
16MB RAM/1.2GB HD/8X CD
2MB VRAM/Low Profile

\$1495!
#89230



**SONY
MultiScan
200sx**



.25mm pitch
15.9" Viewable
image size
\$699!
#86867

**MICROTEK
ScanMaker E3**



Single-pass scanner, 24-bit color,
300 x 600dpi optical
resolution, 2400dpi
enhanced
resolution
\$199!
#78323

**HP HEWLETT
PACKARD**

**DeskWriter
600 Printer**



600dpi
4ppm black
\$149!
#73683

MEMORY

8MB SIMM \$49 #4177
16MB SIMM ... \$99 #65416
32MB SIMM .. \$199 #65417



Offer Code:
MacWorld ZMWD741

Four reasons why MacMall
is the best choice for all
your computing needs:

**FedEx THE FASTEST OVERNIGHT
DELIVERY AVAILABLE**

A MacMall Exclusive! Call as late as 11:00 p.m.
EST and get your order by 10:30 a.m. the next
day via FedEx Priority Overnight.

CUSTOM CONFIGURATION
Have the system you want, custom-config-
ured by our factory-trained technicians.

**EXCLUSIVE DEALS &
SPECIAL OFFERS**
We ALWAYS give you more for your computing dollar.

OVER 20,000 PRODUCTS
You can count on us to have the products
you want, when you want them!



Get your **FREE** issue today!

Please check issue(s) you wish to receive.

☐ MacMall ☐ PC Mall ☐ DataCom Mall
Name _____
Address _____
City _____
State _____ Zip _____

Mail to: MacMall, Dept. ADV.,
2645 Maricopa St., Torrance, CA 90503

MacMall
Place Your Order 24 Hours a Day

1.800.217.9492

WE WILL TRY TO MATCH OR BEAT ANY ADVERTISED PRICE. CALL FOR LATEST PRICING!!

WE ACCEPT PO'S
FROM QUALIFIED FIRMS

MEMORY

SECURITY WILL CALL WINDOW NOW OPEN!
NO SURCHARGE FOR MC, VISA AE & DISCOVER

L.A. Trade has served the PC
market for 10 years...

MACINTOSH MEMORY UPGRADES

Now we bring our expertise
to the Apple Macintosh user.

YOUR MACHINE	STANDARD	MAX	VIDEO UPGRADE	VIDEO COST	256K/ 512K CACHE	2MB	4MB	6MB	8MB	10MB	12MB	16MB	20MB	24MB	32MB	36MB	48MB	64MB
Apple PowerBook 190, 190CS, 5300 Series	4	32					59		99		129	169		189	249		479	
Apple PowerBook 520, 520c, 540, 540c Notebook	4	36					59		89		119	139		189	249			
Apple PowerBook DUO 210, 230, 250 Notebook	4	24					89		139		159		189					
Apple PowerBook DUO 270c Notebook	4	32					89		139		159		189					
Apple PowerBook DUO 280, 280c Notebook	4	40					89		139		159		189			295		
Apple PowerBook DUO 2300c/100 Notebook	4	40							89			149		239	249		469	
Apple Macintosh TV	5	8				34												
Apple Macintosh IIfx	4	128				119						199						556
Apple Macintosh IIfx	2/3/5	17				48			60			116						
Apple Macintosh IIfx & IIfx	4	68	512k	59		48			60			116						556
Apple Macintosh Classic						69												
Apple Macintosh Color Classic	4	10	256k	34		24	48											
Apple Macintosh Classic II, LC, LCII	2/4	10	512k	59		24	48		58									
Apple Macintosh LCIII, LC475, LC550, LC575	4	36	256k	34														
Apple Macintosh LC520	5	36				29	42					89				169		
Apple Macintosh LC580	5	36				29	42					89				169		
Apple Macintosh LC429	4	36				29	42					89				169		
Apple Macintosh LC5200	5	36				29	42					89				169		
Apple Macintosh LC630	5	36				29	42					89				169		
Apple Macintosh IIfx																		
Apple Macintosh IIfx	1	128				48			124			136						556
Apple Macintosh II, IIfx	1	32				48			124			136						
Apple Macintosh Plus, SE	1	4				24	48											
Apple Macintosh SE30	1/2	32				24	48		124			136				169		
Apple Performa 200	2	10				24	48		124									
Apple Performa 400	4	10				24	48		124									
Apple Performa 405, 410, 430	4	10				24	48		124									
Apple Performa 450, 460, 466, 467, 475, 476	4	36	256k/512k	34/68		29	42					99				169		
Apple Performa 550, 560, 575, 577	5	36				29	42					99				169		
Apple Performa 600, 600CD	4	68	512k	59		46	189					99						556
Apple Performa 6110CD, 6112CD, 6115CD (pairs)	8/16	72				29	42					89				169		
Apple Performa 6117CD, 6118CD (pairs)	8/16	72				29	42					89				169		
Apple Performa 630	4	36				29	42					89				169		
Apple Performa 631CD, 636CD	8	52				29	42					89				169		
Apple Performa 635CD	5	36				29	42					89				169		
Apple Performa 636	4	36				29	42					89				169		
Apple Performa 637CD, 638CD	8	36				29	42					89				169		
Apple Performa 640CD	8	52				29	42					89				169		
Apple Performa 5200 Series 5200CD, 5215CD	8	64				29	42					89				169		
Apple Performa 6100 Series 6116CD (pairs)	8	72				29	42					89				169		
Apple Performa 6200 Series 6200CD, 6216CD, 6218CD	8	64				29	42					89				169		
Apple Performa 6200 Series 6220CD, 6230CD, 6290	8	64				29	42					89				169		
Apple Performa 6205CD, 6214CD	8	64				29	42					89				169		
Apple Performa 6300CD, 6320	16	64				29	42					89				169		
Apple Performa 6400CD	16	64			94	29	42					89				169		
Apple Centris 610	4	68	512k	59		29	42					89				169		
Apple Centris 650	4	132	512k	59		29	42					89				169		
Apple Centris 660AV	4	68				29	42					89				169		
Apple Quadra 605	4	36	512k	59		29	42					89				169		
Apple Quadra 610	4	68				29	42					89				169		
Apple Quadra 630	4	36				29	42					89				169		
Apple Quadra 650	4/8	132/136				29	42					89				169		
Apple Quadra 660AV	4	68				29	42					89				169		
Apple Quadra 700	4	68	512k	59		48						136						559
Apple Quadra 800 (pairs)	8	136	512k	59		29	42					89				169		
Apple Quadra 840AV	8	128	512k	59		29	42					89				169		
Apple Quadra 900	4	256	512k	59		48						136						556
Apple Quadra 950	8	256	512k	59		48						136						556
Apple Workgroup Server 60 (pairs)	4	68				29	42					89				169		
Apple Workgroup Server 80 (pairs)	8	136				29	42					99				169		
Apple Workgroup Server 95	16/32/48	256				48						136						556
Apple Workgroup Server 6150 (pairs)	8	72				29	42					89				169		
Apple Workgroup Server 8150 (pairs)	16	264				29	42					89				169		
Apple Workgroup Server 9150 (pairs)	16/24	264				29	42					89				169		
Apple Power Macintosh 6100/60 (pairs)	8	72	512k	59		29	42					89				169		
Apple Power Macintosh 7100/66 (pairs)	8	136	512k	59		29	42					89				169		
Apple Power Macintosh 7200 (168 pin)	8	136	1mg	69	78/120		45					81				175		349
Apple Power Macintosh 7500/100 (168 pin)	8	136	1mg	69	78/120		45					81				175		349
Apple Power Macintosh 8100/80 (pairs)	8	264	512k	59		29	42					89				169		
Apple Power Macintosh 6100/66 & 6100/66AV (pairs)	8/16	72				29	42					89				169		
Apple Power Macintosh 7100/66AV (pairs)	16	136				29	42					89				169		
Apple Power Macintosh 7100/80, 7100/80AV (pairs)	8/16	136				29	42					89				169		
Apple Power Macintosh 8100/100, 8100/100AV (pairs)	8/16	264				29	42					89				169		
Apple Power Macintosh 8100/110 (pairs)	8/16	264	512k	39	—/129	29	42					89				169		
Apple Power Macintosh 8500/120, 132, 150	8/16	264	1mg	44	78/120		45					81				175		349
Apple Power Macintosh 9500/120, 9500/132	8/16	264	2mg	89			45					81				175		349
Apple Power Macintosh 9500/150	8/16	264	2mg	89			45					81				175		349

ALL OTHER POWERBOOKS... 100, 140, 145, 170, 160,
165, 180, 163C, 180C - CALL FOR PRICES!!!

72 PIN MODULES		SIMM MODULES		30 PIN MODULES	
1x32-70 (4MB)	\$29	1x8-80 (1MB)	\$12		
1x32-80 (4MB)	\$30	1x8-70 (1MB)	\$13		
2x32-70 (8MB)	\$42	2x8-70 (2MB)	\$14		
2x32-80 (8MB)	\$45	4x8-70 (4MB)	\$28		
4x32-70 (16MB)	\$89	8x8-70 (8MB)	\$89		
4x32-80 (16MB)	\$94	16x8-70 (16MB)	\$139		
8x32-70 (32MB)	\$169				
8x32-80 (32MB)	\$179				

DIMMS, 168 Pin

1x64	8Meg	\$ 45	8x64	64Meg	349
2x64	16Meg	81	16x64	128Meg	1280
4x64	32Meg	175			

CALL FOR NEW MODELS NOT LISTED

All products brand new & guaranteed • We buy excess inventory
Trademarks are registered with their respective companies.



22825 Lockness Avenue • Torrance, CA 90501

CUSTOMER SERVICE & TECHNICAL: OPEN M-F, 9-4 PST

NEW
168 Pin EDO
3.3V Dimms
Call!

HOT BOX SPECIALS

POWERBOOK 520/540	8MB (6 pin)	Limited Quantities!
POWERBOOK 100/140/145		\$79.00
POWERBOOK DUO 210		\$5.00
POWERBOOK DUO 270c		\$148.00
POWERBOOK DUO 280		\$79.00
POWERBOOK DUO 2300c/100		\$116.00
POWERBOOK DUO 270c		\$111.00
POWERBOOK DUO 280		\$229.00
POWERBOOK DUO 2300c/100		\$479.00

NO SURCHARGE FOR MASTERCARD, AMEX, VISA OR DISCOVER. PURCHASE ORDERS ACCEPTED FROM FORTUNE 500, GOVERNMENT & INSTITUTIONS. California orders add 8.25% sales tax. Returned orders or ordered wrong parts are subject to a 20% restocking fee. We accept international orders shipped via UPS Air. PPD orders welcome. Customers are expected to pay customs and "other" charges if shipped left. All credit card charges verified for fraudulent use. SORRY, NO REFUNDS AFTER 30 DAYS - EXCHANGES ONLY. If you receive defective merchandise we exchange only - no refunds. We accept MC, VISA, Discover, AE, prepaid orders, purchase orders, wire transfer, C.O.D. (cashiers checks) orders, cash & cashiers checks. Orders shipped by UPS. FEDEX must be signed for. *ALL MANUFACTURER PART #S ARE FOR REF. ONLY • MINIMUM ORDER \$40.00 • NO REFUNDS ON SHIPPING.

310-539-0019
FAX: 310-539-5844

SECURITY WILL
CALL WINDOW
NOW OPEN

CALL
TOLL FREE

1-800-433-3726
(US and Canada)

ESTAB.
1985

Prices & Availability
Subject to Change
Without Notice

Mon-Fri, 8:00 a.m. to 5:00 p.m. PST
Sat. 10:00 a.m. to 12:00 noon

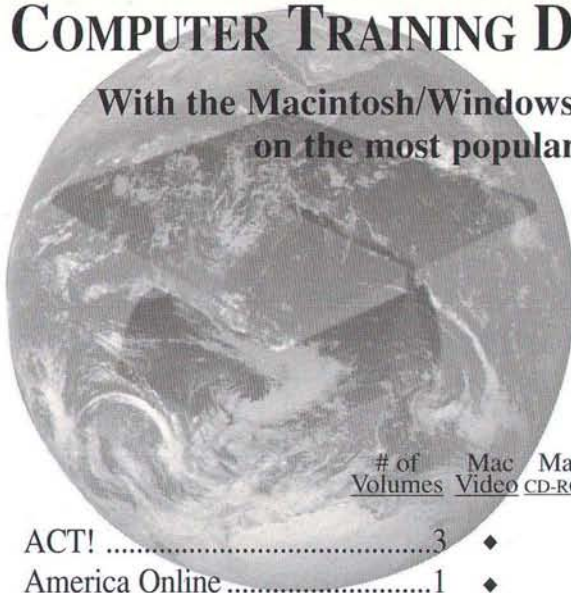
Sales/Orders: latradesls@aol.com

Customer Service: latradecsd@aol.com

Price Inquiries: latradeinq@aol.com

COMPUTER TRAINING DOESN'T HAVE TO BE EXPENSIVE!

With the Macintosh/Windows Training Series you will become an expert
on the most popular software programs in use today.



MacAcademy®

"Where the World Learns the Computer"

	# of Volumes	Mac Video	Mac CD-ROM	Windows Video		# of Volumes	Mac Video	Mac CD-ROM	Windows Video
ACT!	3	♦		♦	Microsoft Works (Mac).....	5	♦		
America Online	1	♦		♦	MiniCad.....	2	♦		♦
Canvas	5	♦		♦	Online, Introduction to.....	1	♦		♦
ClarisWorks	7	♦	♦	♦	PageMill & 3D Web Workshop....	1	♦		
CompuServe	1	♦		♦	PageMaker.....	7	♦		♦
Desktop to Pre-Press	2	♦		♦	Painter.....	4	♦		
Director.....	5	♦		♦	Persuasion.....	2	♦		
Excel	5	♦	♦	♦	Peachtree Accounting.....	4	♦		
FileMaker Pro.....	5	♦	♦		Photoshop	10	♦		♦
FrameMaker	4	♦	♦	♦	PowerPoint	2	♦	♦	♦
FreeHand	6	♦			Premiere.....	3	♦		♦
HyperCard	4	♦			QuarkXPress.....	4	♦		♦
Illustrator	6	♦			QuickBooks	3	♦		♦
Infini-D	2	♦			Quicken	2	♦		
Internet.....	1	♦		♦	Scanning	1	♦		♦
LogoMotion.....	1	♦			TextureScape	1	♦		
Lotus 1-2-3 (Windows).....	4			♦	Windows 95.....	4			♦
Lotus 1-2-3 (Mac)	3	♦			Windows NT	4			♦
Mac Troubleshooting	3	♦			Word	6	♦	♦	♦
Mac Operating System.....	4	♦	♦		WordPerfect.....	6	♦		♦
Microsoft Works (Windows).....	4			♦	Other Programs Also Available!				

Each volume is approximately 2 hours in length and is time coded for your convenience. Volumes may be ordered individually or as a set. All volumes carry a 30 day money back guarantee and may be upgraded when a new version is released for \$19.95 per volume. Please add \$4 per order plus \$1 per volume shipping and handling. Other programs are available, please call for a complete catalog. **Please specify software version and Macintosh or Windows platform.** The newest version will be shipped unless otherwise specified.

Think of how valuable you will be with this training!
Only \$59 per Volume Order Now Call 1-800-527-1914

100 E Granada Blvd Ormond Beach FL 32176-1712 Phone 904.677.1918 Fax 904.677.6717

<http://www.macacademy.com> Priority Code SP609

United Kingdom Phone 0181.445.5225 Fax 0181.446.3314

Australia Phone 03.9705.1066 Fax 03.9705.1077



MAC BARGAIN\$®

Buy with Confidence Online from MAC BARGAIN\$.

- **NEW!** To place an order, e-mail to mac.bargains@mzi.com
- **NEW!** For detailed product information, e-mail to mac.bargains.info@mzi.com
- Over 2500 products in stock



As Low As
\$1349

Model C500

UMAX SuperMac Computers

- Upgradable PowerPC® 603e processor running at 240, 200, 180 or 160MHz
- 16MB RAM, expandable to 144MB
- Spacious 2.1 or 1.2GB hard drive
- 1MB VRAM and 1 or 3 PCI expansion slots
- External and internal Fast SCSI connector
- For more information, e-mail keyword **SUPERMAC**

UMAX

#81530 SuperMac C500L/160 16/1.2GBHD 8CD 603e.....	\$1349
#81531 SuperMac C500L/180 16/1.2GBHD 8CD 603e.....	\$1695
#81532 SuperMac C500L/200 16/2.1GBHD 8CD 603e.....	\$1995
#81533 SuperMac C500L/240 16/2.1GBHD 8CD 603e.....	\$2295



Adobe PageMaker 6.5

Only
\$89⁹⁸

Adobe PageMaker 6.5 Version Upgrade

- Automatic reformatting and document-wide layers
- New text and graphics frames
- Export pages to HTML format for Internet publishing
- For more information, e-mail keyword **PAGEMAKER**

Adobe #83068



Only
\$716⁵²

Vista-S12 Scanner

Analog Gamma delivers 33-bit equivalent image quality at a 24-bit scanner price!

- Optical resolution: 1200x600 dpi
- Max. resolution: 9600 dpi
- Max. scan size: 8.5x11.7"
- Color Bit Depth: 33-bit equivalent
- Scan method: Single pass

UMAX #83507

Activision		
84360	Mech Warrior 2	\$44.83
Adobe		
93952	Adobe Acrobat 3.0	\$184.49
88827	Adobe After Effects 3.0 CD	\$648.89
88207	Adobe Illustrator 5.0 To 6.0 Upgr CD/3.5"/Mac	\$128.89
88205	Adobe Illustrator 5.0 To 6.0 Upgrade CD	\$98.89
88206	Adobe Illustrator 6.0 CD & 3.5"	\$388.89
87610	Adobe Illustrator 6.0 CrossGrade CD & 3.5"	\$128.89
87628	Adobe Illustrator 6.0 CrossGrade CD w/Freehand	\$98.89
83069	Adobe PageMaker 6.5 CD & 3.5"	\$548.89
83067	Adobe PageMaker 6.5 Comp. Upgrade	\$118.89
83068	Adobe PageMaker 6.5 Upgrade	\$89.99
88414	Adobe PageMill 2.0	\$98.89
83932	Adobe PageMill 2.0 Upgrade	\$48.89
38523	Adobe Persuasion 4.0 Mac & Win	\$244.49
81740	Adobe Persuasion 4.0 Upgrade	\$118.89
83083	Adobe Photoshop 4.0	\$548.89
83084	Adobe Photoshop 4.0 Upgrade	\$134.49
04670	Adobe Premiere 4.2 CD	\$488.89
03971	Adobe Streamline 3.1	\$128.89
92218	Adobe SuperPaint Deluxe 3.5	\$68.89
92249	Adobe TextureMaker 1.0 Mac/PowerMac	\$128.89
95307	Adobe Type Twister 1.0 for Mac	\$29.99
AEC Software		
03456	Fast Track Schedule 4.0 PowerMac or Mac	\$167.20
Aladdin		
05827	StuffIt Deluxe 4.0	\$66.11
85605	StuffIt Deluxe 4.0 Upgrade	\$32.36
87434	StuffIt Dlx 4.0/Conflict Catcher 3 Bundle	\$79.99
Alien Skin		
92297	The Black Box 2.0	\$79.93
Alsoft		
04543	Master Juggler 2.0	\$39.99
Berkeley Systems		
83662	AfterDark 4.0 w/\$10 Rebate	\$27.46
83667	You Don't Know Jack Sports	\$27.46
Bestware		
04712	MYOB Accounting 7.0	\$76.98
99042	MYOB Accounting w/Payroll 7.0	\$121.03
Broderbund		
86677	Logical Journey Of The ZooMinitis	\$27.52
Bungie Software		
96284	Marathon	\$35.00
88450	Marathon 2 Durandal	\$41.12
Coore		
91304	OmniPage Pro 6.0 Upgrade	\$116.17
Casady and Greene		
91310	Conflict Catcher 3 Competitive Upgrade	\$28.65
82126	Conflict Catcher 3/3RAM/Speed Dblr Bndl	\$98.89
84048	Connectix RAM Doubler 2	\$53.63
90375	Connectix Speed Doubler for Mac 2.0	\$54.49
Claris		
84075	Claris Emailer 2.0	\$44.49
86444	Claris Organizer 2.0	\$62.45
18052	ClarisDraw 1.0 v3	\$179.69
99734	Clarismapact 2.0	\$78.75
93424	ClarisWorks 4.0	\$116.09
84051	ClarisWorks 4.0/Apple Internet Conn. Kit	\$116.09
92638	ClarisWorks 4.0 Comp/Ver Upgrade	\$62.38
FileMaker Pro 3.0		
88830	FileMaker Pro 3.0	\$181.02
88829	FileMaker Pro 3.0 Ver/Comp Upgrd CD/3.5"	\$89.90
04140	MacProject Pro 1.5	\$370.72



Only
\$134⁹⁸

Adobe Photoshop 4.0 Upgr

- Batch-process files with Actions Palette
- Guides and Grid feature for precise control
- Adjustment Layers let you experiment with effects

Adobe #83084

Corel		
91628	Corel GALLERY 2 (Mac)	\$33.75
31722	Corel Pro Photo Vol 13-Txts/Bkgs/Objs	\$124.88
92234	Corel Stock Photo Library 1 w/World's Bo	\$869.99
91276	Corel Stock Photo Library 2	\$869.99

84053	CorelDraw 6	\$391.97
84052	CorelDraw 6 Ver/Comp Upgrade	\$136.12
03972	WordPerfect 3.5 Full Version CD-ROM	\$156.04
83933	WordPerfect 3.5.1 C/V Upgrade CD-ROM	\$78.75
Dantz		
02586	Dantz Retrospect 3.0	\$136.13
04194	Dantz Retrospect w/10 User Remote	\$247.11
Dataviz		
96908	MacLink Plus/Translator Pro v9.0	\$87.35
96908	MacLink Plus/Translators Pro 8.0	\$87.11
Datavatch		
02077	Virex 5.7 for Mac	\$64.49
89501	Virex 5.7 Version Upgrade	\$24.49
Davidson & Associates		
84730	Warcraft 2: Tides of Darkness CD	\$41.13

Only \$629⁹⁸

QuarkXPress 3.32

The layout software pros prefer

- Exacting text & image placement
- Virtually total typographic control

Quark #95320

Delorme		
96777	Street Atlas USA 3.0	\$37.44
Epson		
82860	Epson PostScript Level2 SW for Stylus Pro	\$190.90
83649	Epson PostScript Level2 SW for Stylus XL	\$238.43
Equilibrium		
98360	DeBabelizer Toolbox 1.6	\$233.40
Extensis		
84233	PhotoTools	\$87.35
91343	QXTools	\$87.35
Farallon		
96801	Farallon Timbuktu Pro for Mac 2.0 2-Pack	\$168.51
96800	Farallon Timbuktu Pro for Macintosh 2.0	\$129.78
Fractal		
37624	Fractal Design Dabbler 2.0 CD	\$44.49
83051	Fractal Design Detailer	\$279.99
83073	Fractal Design Expressions	\$279.99
93967	Fractal Design Painter 4 Upgrade for Mac	\$124.49
91289	Fractal Design Poser	\$89.99
FWB		
06271	FWB CD-ROM Toolkit 2.0 CDT	\$46.24
00555	Hard Disk Toolkit 2.0	\$116.17
81656	Hard Disk Toolkit 2.0 Upgrade	\$44.83
05476	Hard Disk Toolkit Personal Ed 2.0	\$46.24
GDT		
82867	GDT Softworks StyleScript 3.0	\$88.56
00642	PowerPrint 3.0	\$88.56
86168	PowerPrint GX	\$117.35
GraphSoft		
97781	MiniCad 6.0	\$519.42
GT Interactive		
87501	The Ultimate Doom CD	\$28.69
Insignia		
04768	SoftPC 3.1 Professional	\$149.98
98475	SoftWindows 3.0 for PowerMac CD	\$292.06
87440	SoftWindows 95 for PowerMac CD	\$330.87
87442	SoftWindows 95 for PowerMac CD Upgrd	\$141.01
91088	SoftWindows for Performa	\$118.61
Intuit		
93222	Quickbooks 4.0 for Mac	\$112.39
89653	Quickbooks Pro 4.0 for Mac	\$182.34
04230	Quicken 7 for Mac	\$39.99
89685	Quicken Deluxe 7 for Mac	\$57.52
Jian		
04257	Biz Plan Builder 5.0 Mac w/Video	\$76.16
Jump Development		
92896	Optimem RAM Charger 2.0	\$28.75
Leister Productions		

05984	Reunion 4.0 The Family Tree Software	\$99.99
Looking Glass Tech		
87486	Flight Unlimited - Power PC	\$99.99
MacPlay		
82916	Virtual Pool	\$39.99
82915	Virtual Pro Pinball	\$39.99
Macromedia		
88730	Director 5.0 w/Shockwave	\$89.99
92266	Director Multimedia Studio 2.0	\$99.99
86007	Director Multimedia Studio 2.0 Upgrade	\$49.99
88748	Extreme 3D Competitive Upgrade	\$19.99
04537	Fontographer 4.1	\$39.99
82501	FreeHand 7.0	\$39.99
84242	FreeHand 7.0 Upgrade	\$14.99
84242	FreeHand 7.0 Version Upgrade	\$14.99
92290	FreeHand Graphic Studio 2.0	\$44.99
86005	SoundEdit 16 2.0 PE Deck II 2.5	\$39.99
MetaTools		
81843	Bryce 2.0	\$19.99
84479	Kai's Power Goo	\$9.99
06668	Kai's Power Tools 3.0	\$12.99
91258	Vector Effects 1.0	\$11.99
Micromet		
87067	TechTool Pro	\$9.99
Microsoft		
37803	MS Cinemania '97 for Mac CD	\$29.99
95750	MS Encarta 1997 Mac CD	\$6.99
00227	MS Excel 5.0 for Mac	\$29.99
04545	MS Excel 5.0 for MacVersion Upgrade	\$11.99
04293	MS Flight Simulator 4.0 Mac	\$44.99
99696	MS Fox Pro 2.6 for Mac	\$29.99
18059	MS Office 4.2.1 Comp/Ver. Upg. for Mac	\$27.99
04027	MS Office 4.2.1 Mac	\$46.99
83315	MS Office 4.2.1 w/Essential Tools	\$45.99
83316	MS Office 4.2.1 w/Essential Tools Upgr	\$27.99
06300	MS PowerPoint 4.0 Version Upgrade	\$11.99
04161	MS Project 4.0 for Mac	\$42.99
04898	MS Word 6.0.1 for Mac	\$29.99
00596	MS Word 6.0.1 Version Upgrade	\$11.99
05750	MS Works 4.0 for Mac	\$4.99
35483	Publisher 97 Upgrade/Full Version	\$69.99
Nisus		
03479	Nisus Writer 5.0	\$18.99
81652	Nisus Writer 5.0 Upgrade	\$9.99
Now Software		
86085	Now Up to Date/Now Contact 3.6	\$5.99
04191	Now Utilities 6.5	\$5.99
86442	Now Utilities 6.5 Upgrade	\$2.99

Only \$68⁹⁸

Upgrade to System 7.6 w/Apple Internet Kit

- Integrates latest versions of hot technologies such as QuickTime and QuickDraw!
- Now supports Windows 95 disks!
- Faster printing, improved stability & revised virtual memory for better performance
- For more information, e-mail keyword **APPLEDS**

Apple #80148

ParSoft		
88389	A-10 Attack CD-ROM	\$49.99
PeachTree		
02594	PeachTree Accounting 2.5	\$89.99
Qualcomm		
91072	Eudora Pro Mac	\$52.99
Quark		
82500	QuarkXPress 3.32	\$657.99
95320	QuarkXPress 3.32 Native PowerPC	\$639.99
SoftKey		
87626	Amer Her Dix Talking Dictionary Mac/Win	\$28.99
03631	Calendar Creator 2.0 Mac	\$36.99
00641	WriteNow 4.0 with Correct Grammar	\$39.99
Symantec		
06231	ACT! 2.5 for Mac	\$149.99
06997	Norton DiskDoctor Pro 1.1	\$68.99
94186	Norton DiskLock 4.0 Upgrade	\$48.99
04890	Norton Utilities 3.2	\$94.99

Call MAC BARGAIN\$ before you buy!
1-800-619-9091



Add applicable sales tax (only in OH, WA). All shipments refer to "in stock" items, barring system failure, etc. Not responsible for typographical errors. Credit cards are not charged until the order is shipped. Most products ship the same day for overnight delivery. Overnight delivery is only \$7 for the first 7 pounds and \$1 for each additional pound. Call for international shipping rates. Packaging and handling \$4 per order for delivery in the USA. Returns subject to a restocking fee. Prices and product availability subject to change without notice. Specials and promotions may be limited to stock on hand.

For the Best Deals Around!

1-800-619-9091



DISCOUNT PRICES ON QUALITY HARDWARE, SOFTWARE & ACCESSORIES



Great Prices
on the Complete Line of Apple Computers.



MacInTax
Final '96

- Take the hassle out of doing your taxes and get the largest possible refund!
- EasyStep guides you through your return - step by step
- Tax Advisor offers money-saving tax advice

Intuit #87832

*After \$10 Mfr. Mail-in rebate.
Low Mac Bargains price \$49.98.



Only \$49.95

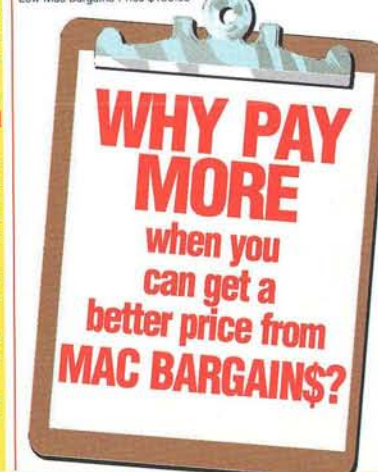
lomega
Zip and Jaz Drives

- Faster than most hard drives
- 100MB of space on each Zip Cartridge
- Provides 1GB of space on each Jaz Cartridge
- For more information, e-mail keywords ZIPSCSI or JAZSCSI

lomega

#91825 lomega Zip 100 SCSI \$149.95*
#25659 lomega 1GB Jaz Drive \$499.95

*After \$50 Mfr. Mail-in Rebate.
Low Mac Bargains Price \$199.95



Our Knowledgeable
Sales Advisors help
make buying easy!

YOUR SOURCE CODE
BW704

Input

Adesso

91854 Adesso Soft Touch Keyboard	\$44.09
90766 Tru-Form Extended Keyboard	\$73.18
85594 Tru-Form Extended Keyboard w/Touchpad	\$90.91

Apple

93374 Design Keyboard	\$84.49
94461 Extended Keyboard II	\$154.49

Calcomp

91862 Drawing Slate II 12x12 w/Pressure Pen	\$225.91
91869 Drawing Slate II 12x18 w/Pressure Pen	\$272.61
91864 Drawing Slate II 6x9 w/Pressure Pen	\$210.80

Grovis

89394 Advanced Grovis FireBird for Mac	\$60.57
05998 Grovis MouseStick II	\$40.39

Kensington

89379 Kensington Mouse 1.0	\$54.31
93628 Kensington Thinking Mouse ADB	\$63.17
87483 Turbomouse 5.0	\$90.91

Thrustmaster

95201 Thrustmaster Flight Control System	\$90.88
95200 Thrustmaster Weapons Control System	\$56.70

Wacom

90644 ArtPad II (ADB) w/Dabber Bundle	\$147.63
90643 ArtPad II (ADB) w/Erasing UltraPen	\$133.77
90646 Artz II 12x12 (Serial) w/Erasing UltraPen	\$420.53
90645 Artz II 6x8 (ADB) w/Erasing UltraPen	\$301.72



SyQuest
EZ135MB
3.5"
Cartridge
5-Pack

- Only \$21.99 each when purchased in a 5-pack!
- The world standard in removable mass storage

Only \$109.98

SyQuest #24909

Printers

Epson

90488 Epson Multi-Protocol Ethernet Interface	\$382.02
83409 Epson Stylus Color 500 Inkjet Printer	\$278.31
89901 Epson Stylus Color Pro Inkjet Printer	\$379.44
87980 Epson Stylus Color Pro XL Inkjet Printer	\$1,780.22

Hewlett-Packard

89150 HP DeskJet 1600CM Color Printer	\$1,925.00
86809 HP DeskJet 340CM Portable Printer	\$319.99
36156 HP DeskJet 870Cse InkJet Printer	\$499.99
88902 HP DeskWriter 600 Printer	\$149.99
86345 HP DeskWriter 680C InkJet Printer	\$289.99
82666 HP LaserJet 6MP Printer	\$930.02
13692 HP Tri-Chamber ColorPrint Cartridge	\$23.78

Surge Back-up

American Power Conversion

94359 APC Back-UPS 200	\$89.78
99364 APC Back-UPS 400	\$141.11
05901 APC Back-UPS 450	\$174.74
11651 APC Back-UPS 600	\$238.52
85595 APC Back-UPS Office	\$129.85
94395 APC Personal Surge Arrest 7 Outlet w/Ph	\$19.97
94393 APC Prof Surge Arrest 7 Outlet w/Phone	\$32.42
25582 APC Smart UPS 700	\$348.25

APC

94396 APC Personal Surge Arrest - 7 Outlet	\$14.98
--	---------

Mobile Accessories

Battery Technology

87494 BT1 2-Slot Batt Chgr w/Int 5300/190 Batt	\$79.60
88751 BT1 Auto Pwr Adpt w/Int 5300/190 Series	\$54.20
93648 BT1 PB 100-180c Univ. Power Adapter	\$54.20
06641 BT1 PB 140-180c Power Charger	\$79.60
85820 Internal 5300/190 Battery	\$79.60

Curtis

85810 Curtis Case - Leather	\$108.52
85809 Curtis Case - Vinyl	\$85.80

DoubleCase

87219 zipPac Hard Case/lomega Zip Drive Bndl	\$227.79
88293 zipPac Hard Case	\$30.31

Targus

06023 Targus Notepad Case Black	\$28.98
07454 Targus Universal PowerBook Case	\$59.32

89878 LaCie IQ 2160MB Internal HD	\$363.52
-----------------------------------	----------

MicroTech

86174 MicroTech 200MB SyQuest Ext. Drive	\$364.89
89619 Road Runner 500MB PowerBook Drive	\$511.36
89641 Road Runner 800MB PowerBook Drive	\$625.00

ProMax

86199 ProMax lomega Jaz Cartridge 1GB	\$102.15
---------------------------------------	----------

Quantum

82184 Fireball TM 2.111GB SCSI Int HD	\$397.73
---------------------------------------	----------

VST

87426 VST Exp Bay 230MB M.O. 1/PB 190/5300	\$381.31
--	----------

SONY.

Multiscan®
200sx Trinitron®
17" Display

(15.9" viewable image size)

- 25mm Super Fine Pitch™ aperture grill
- Supports 1024x768 resolution (non-interlaced) at 75Hz

Sony #06689



Only \$669.98

Media

Fuji

94094 FUJI 3.5" MF2HD Mac Format. 10-Pk 1.4MB	\$5.20
91952 FUJI CDR-74	\$7.80
05717 Fuji DG90M 4mm Data Grade Tape 1.95GB	\$6.49

lomega

97291 Bernoulli MultiDisk 150MB Single Cart.	\$94.49
91160 Zip Media Mac100 3-Pack	\$49.99
91161 Zip Media Mac100 10-Pack	\$149.99
91159 Zip Media Mac100 Single	\$17.64

Kyocera

86251 Kyocera CDR-74	\$7.79
----------------------	--------

Performatz

80203 Performatz 12x Ext CD Drive	\$249.99
83400 Performatz 4xCD Drive	\$129.29

Philips

89805 Philips CD-Recordable 74 Min Disk	\$7.80
---	--------

Sony

01140 Sony 3.5" 230MB M.O. 512b/s	\$18.32
14368 Sony CD-R 650MB 74 Min Disk	\$6.54
86838 Sony SRS-91 Speakers	\$128.00
32804 Sony SRS-PC21 PC Speakers	\$22.16

SyQuest

00278 SyQuest 200MB 5.25" Removable Cart.	\$805.59
97992 SyQuest 270MB 3.5" Removable Cart.	\$52.29
02183 SyQuest 44MB Cart Unformatted	\$49.99
00183 SyQuest Cart 88MB	\$45.59
24910 SyQuest EZ135MB 3.5" Cartridge 10-Pk.	\$198.89
24909 SyQuest EZ135MB 3.5" Cartridge 5-Pk.	\$109.99

Verbatim

91979 Verbatim 230MB 3.5" M.O. Mac Formatted	\$15.75
01169 Verbatim 230MB 3.5" R/W 1024b/s	\$14.46
21922 Verbatim CD-R 74min 4X	\$7.76

Scanners

AGFA

02135 AGFA Arcus II Scanner, MAC Version	\$1,875.00
89851 AGFA StudioScan IISI Color Scanner	\$630.71
06686 AGFA StudioStar	\$968.84
06685 AGFA StudioStar LE	\$792.79

Epson

91939 Epson ES-1000C Flatbed Scanner	\$575.51
82673 Epson Expression 636 Pro. Scanner	\$1,778.99
82671 Epson Expression 636 Executive Scanner	\$658.88

Microtek

06673 ScanMaker E3	\$309.55
06672 ScanMaker E6 Standard	\$560.55
78922 ScanMaker III w/TMA	\$1,410.11

UMAX

84149 UMAX Powerlook II w/TMA & Phtshp LE	\$1,811.46
83501 UMAX Vista S-6E w/Adobe PhotoDeluxe	\$292.13
83507 UMAX Vista S-12 w/Adobe Photoshop	\$716.52
82675 UMAX Vista-S12 w/PhotoDeluxe	\$525.51
83503 UMAX Vista-S6E w/Full Photoshop	\$573.03

Visioneer

86783 PaperPort Vx SCSI Adapter for Mac	\$57.42
88164 Visioneer PaperPort Vx For Macintosh	\$280.79

76 Norton Utilities 3.2 Upgrade	\$38.89
46 SAM 4.5 Upgrade	\$28.89
42 Suitcase 3.0 Upgrade	\$46.69

T/Maker

88 ClickArt Handwritten Fonts	\$33.60
03 ClickArt Incredible Image Pak 25000	\$33.60

Monitors

Hitachi

96 Rasterops SuperScan MC 20	\$1,385.14
77 Rasterops SuperScan MC 21	\$1,711.00

NEC

42 NEC Multisync C400 14" Monitor	\$299.99
93 NEC Multisync M700 Ctr Monitor 17"	\$779.99
19 NEC XE21 21" Color Monitor	\$1,699.90

Sony

87 Sony Multiscan 100sf 15" Monitor	\$464.11
86 Sony Multiscan 100sx 15" Monitor	\$388.89
875 Sony Multiscan 15sx Monitor	\$350.56
87 Sony Multiscan 200sf 17" Monitor	\$771.56
89 Sony Multiscan 200sx 17" Monitor	\$669.11
88 Sony Multiscan 300sf 20" Monitor	\$1,624.67

ViewSonic

84 ViewSonic 15GA 15" Multimedia Monitor	\$413.56
259 ViewSonic 17EA Multimedia Mtr w/Adpt.	\$614.54
429 ViewSonic 17GA Monitor/Adapter Bundle	\$715.55
431 ViewSonic 17GS Monitor w/Adapter Bndl	\$635.14
832 ViewSonic PT770 17" Color Monitor	\$739.44

Video Cards

ATI

136 ATI Exclaim GA 4MB PCI	\$325.84
----------------------------	----------

Connectix

317 Connectix Color QuickCam for Mac	\$223.46
884 Connectix QuickCam for Macintosh	\$93.61

Radius

143 Radius Thunder 3D Video Card	\$2,950.00
920 Radius Video Vision Studio PCI	\$3,573.04

Accelerators

DVC

361 DVC Equalizer Pwr Mac 6100 7100 & 8100	\$65.33
--	---------

FWB

124 FWB PCI SCSI Jackhammer	\$317.31
121 FWB SCSI Jackhammer	\$434.64

Modems

Boca

765 FastMac V.34 33.6 FaxModem	\$102.27
--------------------------------	----------

Global Village

312 PowerPort Platinum Pro V.34/10-T PC Card	\$425.48
313 PowerPort Platinum V.34 PC Card	\$263.89
2575 TelePort Internet Edition 33.6 Fax/Modem	\$1,665.34
574 TelePort SpeakerPhone Ed. 33.6 Voice	\$244.89



Only \$169.98

Global Village
Teleport

33.6 Data/FAX Modem

- 33.6 Kbps - blazing fast!
- Call Sensing - take fax and voice calls on the same line as your answering machine
- GlobalFax software for fast, easy faxing
- Complete address book

Global Village #82575

Megahertz

8528 CruiseCard Cellular Ready X.lack 288 Mac	\$239.99
---	----------

Supra

3465 Supra FAXModem V.34 33.6 External Mac	\$191.82
3856 SupraExpress 336e External	\$119.90

US Robotics

93701 Mac & Fax Sportster 14.4 Fax/Data Modem	\$55.53
92953 Mac & Fax Sportster 28.8 V.34	\$166.59
87406 Mac Sportster V.34 28.8	\$193.18

Storage

LaCie

82194 LaCie Fireball TM 1.280GB Ext SCSI HD	\$374.89
82193 LaCie Fireball TM 1.280GB Int SCSI HD	\$306.70

IF YOU
DON'T
SEE IT...
CALL!

MAC BARGAINS®

FAX: 1-206-430-3420

E-Mail Address: mac.bargains@mzi.com

707 South Grady Way, Renton, WA 98055-3233

©1997 MZI, Inc. Renton, WA. All product names throughout this ad are trademarks™ of their respective holders. All rights reserved.

BIG MAC

http://www.wcn.com
Computers
 1831 Pontius Ave., Los Angeles, CA 90025

CALL TOLL FREE
1(800) 761-1999

Toll Free 800.761.1999 • Tel. 310.235.1780 • Fax. 310.235.1790

SPECIAL!

Limited Quantity



1400cs/117 12/750 \$1995
Internal 6XCD add \$365



MOTOROLA

AMT4200/604e200 32/2GB/8XCD \$2,550
 AMT4200/604e200 16/1.2/8XCD \$2,325
 AMT4160/604e166 32/2GB/8XCD \$2,150
5 YEAR WARRANTY

UMAX

UMAX S900L/225 32/2GB/8XCD \$3,850
 UMAX S900L/200 32/2GB/8XCD \$3,450



PowerComputing

PT Pro 604e/225 32/2GB/8XCD \$4,295
 PT Core 604e/225 32/2GB/8XCD \$3,795

Please call for other products.

DAYSTAR

MP800/MP700/MP600/MP360 CALL

WE CUSTOM CONFIGURE TO YOUR SPECIFICATIONS!

POWERMAC 9500/9600

9600/200	32/2gb/12xCD	CALL
9500/200	32/2GB/8xCD/ATI	\$3095
9500/200	0/0/8xCD	\$2499
9500/180MP	32/2GB/CD/ATI	\$3995
9500/150	32/2GB/CD/ATI	\$2350
9500/132	16/1GB/CD	\$2395

POWERMAC 8500/8600

8600/200	32/2GB/12xCD	CALL
8500/200	32/2GB/8xCD	\$3195
8500/180	32/2GB/8xCD/L2	\$2450
8500/180	0/0/8xCD/L2	\$1995
8500/150	16/2GB/8xCD	\$2295
8500/132	16/1GB/4xCD	\$1995
8500/120	16/1GB/4xCD	\$1595
8100/110	16/2GB/CD	\$2195

POWERMAC 7200/7600/7300

7300	All configurations	CALL
7600/132	16/1GB/8xCD	\$1699
7600/120	16/1GB/4xCD	\$1550
7200/120	16/1GB/8xCD	\$1199

POWER BOOKS

1400cs/117	12/750	\$1995
1400cs/117	12/750/CD	\$2395
1400c/117	16/1GB/CD	\$3395
Duo 2300c	8/750	\$1295
Duo 2300c	20/1.1GB/modem	\$1650
5300cs/5300c/5300ce		CALL

PERFORMA

6400/200	16/2.5/8xCD/28.8/KB	\$1595
6400/180	16/1.6/8xCD/28.8/KB	\$1199
6360/160	16/1.2/CD/28.8/KB	\$1199

DEMO MAC'S (2 years warranty)

9500/200	32/2GB/CD/ATI	\$2995
9500/180MP	32/2GB/CD/ATI	\$3595
8100/110	16/2GB/CD	\$2195

APPLE PARTS

700 MB SCSI HARD DRIVE	\$169
1.44 SUPER FLOPPY DRIVE	\$99
9500/8100-110 LOGIC BOARD	\$650/895
180/200 MHz PROCESSOR	\$899/1199
POWER SUPPLY FOR ALL MACS	CALL



We can match any advertised price for your "Add-on's"

INTERNAL ADD-ON'S

FREE INSTALLATION INCLUDED

IOMEGA JAZZ	\$399
HP 8GB DAT	\$995
YAMAHA 4X4X CDR	\$899
1M V-RAM	\$49
2MB V-RAM-ATI	\$139
4MB-VRAM FOR MOTOROLA	\$299
IMS TWIN TURBO 4MB	\$335
MIRO MOTION DC 20 PCI	\$650
ATI 4MB PCI VIDEO CARD	\$375
8MB DIMM	\$59
16MB DIMM	\$89
32MB DIMM	\$179
64MB DIMM	\$339
256K-L2 CACHE	\$89
512K-L2 CACHE	\$149
1MB-L2 CACHE	\$189
1.2GB HARD DRIVE	\$289
2.1GB HARD DRIVE	\$359
4.3GB HARD DRIVE	\$899
9GB HARD DRIVE	\$1899
23GB HARD DRIVE	\$3195
10-BASE-T	\$89
10/100 BASE T	\$199
APPLE 100 PCI DOS CARD	\$699
PROCESSOR UPGRADE	
UPGRADE TO 180 MHz 604e	\$650
UPGRADE TO 200 MHz 604e	\$850

PRINTERS

APPLE COLOR 12/660	\$5599
APPLE LW 4/600-12/640	\$850/1435
APPLE SW 1500	\$259
APPLE SW 2200/2500	\$395/335
EPSON STYLUS COLOR PRO XL	\$1733
HEWLETT PACKARD 6MP	\$925

MONITORS

APPLE 15"/15"AV	\$375/469
APPLE 1705/1710 17"	\$649/850
APPLE 20"	\$1750
SONY 100SX/200SF	\$439/749
VIEWSONIC/RASTER OPS/RADIUS	CALL

Call TOLL FREE: 800-905-3034 Local 818-708-6388

See us at <http://www.macmarket.com> Check out our Weekly Specials

Powerbook® 1400 IS HERE!

CS12MB/750MB	#A1720	\$2369
CS16MB/750MB/6xCD	#A1722	\$2729
C16MB/1-GB/6xCD	#A1724	\$3349
C16MB/1-GB/6xCD/133MHz	#A1720	CALL

MacMarket

800-905-3034



BELL Memory

DIMMS		SIMMS	
8MB	\$65 #M1628	8MB	\$65 #M1598
16MB	\$75 #M1625	16MB	\$75 #M1595
32MB	\$159 #M1622	32MB	\$149 #M1604
64MB	\$279 #M1619		

PowerBook Memory

PB 5300/190		PB 1400	
8MB	#M1387 \$119	8MB	#M1310 \$99
16MB	#M1390 \$159	12MB	#M1312 \$125
32MB	#M1393 \$269	16MB	#M1314 \$155
		24MB	#M1316 \$185

Performa® 6360 BlowOut \$999
16MB/1.2GB/28.8 #A1105

Power Macintosh®
Call here for New 7300, 8600 & 9600 Power Macs

PM 9500/180MP/32MB/2GB/8xCD/2MBVRAM	CALL	#A1700
PM 9500/200MHz/32MB/2GB/8xCD/2MBVRAM	CALL	#A1699
PM 8500/180MHz/32MB/2GB/8xCD/L2Cache	CALL	#A1688
PM 7600/132MHz/16MB/1.2GB/8xCD/L2Cache	CALL	#A1684
PM 7200/120MHz/16MB/1.2GB/8xCD/L2Cache	\$1,349	#A1651

APPLE MONITORS **APPLE PRINTERS**

Multiple Scan 1705	\$699	#M6638 Laser 16/600PS	\$2150	#P3250
Vision 1710	\$899	#M6500 Laser 12/640	\$1,449	#P3248
Vision 1710AV	\$959	#M6567 Laser 4/600PS	\$859	#P3256
Multiple Scan 20"	\$1799	#M6564 Color SW. 1500	\$199	#P3369

Call for Your Catalog

MOTOROLA StarMax Systems

3160/Dsktp-16MB/1.2GB	\$1495	#A1020
3160/Twr-32MB/2.5GB	\$1795	#A1022
3200/Dsktp-16MB/1.2GB	\$1799	#A1024
3200/Twr-32MB/2.5GB	\$1919	#A1026
4160/Dsktp-16MB/1.2GB	\$2059	#A1028
4160/Twr-32MB/2.5GB	\$2159	#A1030
4200/Dsktp-16MB/1.2GB	\$2339	#A1032
4200/Twr-32MB/2.5GB	\$2499	#A1034

UMAX Computer Corporation

Ultimate Expandability

Combined fast Ethernet (100 Base-T) and 16-bit Ultra SCSI Extended performance card (optional)

6 PCI Slots

Up to 1GB RAM

Exclusive Advanced Scalable Processor Design (ASPD) CPU Board for dual processing configuration and higher clock speeds

Instant Rebate up to \$350 on UMAX Supermac®

Instant Rebate on C600L \$150

Agfa DuoScan Call #S8480

Arcus II \$1729 #S8482

StudioStar Full \$969 #S8496

StudioStar LE \$789 #S8493

SnapScan \$349 #S8492

Daystar Digital nPOWER 360+ \$1375 #A4513

Watcom ArtPad II 4x5 \$135 #T9513

ArtZ II 6x8 \$299 #T9500

ArtZ II 12x12 \$389 #T9503

Polaroid SprintScan 35LE \$709 #S8555

SprintScan 35/es \$1469 #S8547

SprintScan 35+ \$1869 #S8550

SprintScan 45 \$1895 #S8543

Yamaha CD Recordables w/TOAST Software 4 Speed \$999 #E7297

Pinnacle Micro Apex 4.6GB optical \$1599 #E7236

Tahoe 640 \$642 #E7257

Vertex 2.6GB \$1339 #E7253

CDR 4x4 w/Toast Pro \$949 #E7260

Microtek ScanMaker III(36Bit) \$1359 #S8444

Radii PressView 17SR \$1899 #M6600

PressView 21SR \$3049 #M6609

Precision View 21 \$2229 #M6614

MultiView 21 \$1399 #M6611

PrecisionColor 24/1600 \$429 #V9208

ThunderPower 1920 \$1159 #V9197

VideoVision 2.0 PCI \$3149 #V9145

Epson Stylus Color ProXL \$1639 #P3291

Stylus Color 500 \$279 #P3399

Expression 636 Prof. \$1789 #S8569

Sony 100SF 15" Trinitron \$479 #M6490

200SF 17" Trinitron \$769 #M6584

300SFT 20" Trinitron \$1649 #M6586

TrueVision® Video Editing Bravado 1000(PCI) \$639 #V9231

Targa 2000(PCI) \$3029 #V9200

Targa 2000 RTX(PCI) \$1989 #V9337

Imagex Zip Drive & Cart. \$139 #R6103

10-Pack Zip Carts. \$129 #C7250

JAZ Drive 1GB & Cart. \$459 #R6106

Supra FAX Modem Fax/Modem 33.6 v.34 \$189 #F8108

SupraSonic 33.6 \$229 #F8110

SupraExpress 33.6 \$125 #F8113

Hewlett Packard 680c 600x600 \$299 #P3465

6MP 600dpi \$899 #P3348

4MV 11x17 \$2649 #P3325

Deskjet 1600CM \$1949 #P3410

Guaranteed

C500L 166MHz Desktop Unit #A1638
w/Monitor \$1,549
16MB/1.2GB/8xCD
15" CLR Monitor/Keyboard

S900L/604e 32MB/2.1G-7200rpm/IMS128Mw-8MB	#A1642	\$4,295
225MHz MacMarket Instant Rebate*	-\$350	\$3,945
S900L/DP/2-604e 32MB/2.1G-7200rpm/IMS128Mw/4MB	#A1637	\$4,595
180MHz MacMarket Instant Rebate*	-\$350	\$4,245
S900L/604e 32MB/2.1G/IMS128Mw-4MB	#A1639	\$3,795
200MHz MacMarket Instant Rebate*	-\$300	\$3,495
S900L/604e 32MB/2.1G/IMS128Mw-4MB	#A1641	\$3,595
180MHz MacMarket Instant Rebate*	-\$300	\$3,295
J700L/604 16MB/2.1G/2MBVRAM/6/xCD/Kybd & Mouse	#A1633	\$2,795
Cost \$2,795 After Rebate (*\$150) =	\$2,645	
150MHz/180MHz #A1634 Cost \$3,095 After Rebate (*\$200) =	\$2,895	

All units have: 8xCD/Keyboard & Mouse(except as noted)

\$150 Instant Rebate on C600

C600 Systems MacWEEK

240MHz/603e /16MB RAM/2.1GB HD/8xCD/28.8	#A1649	\$2,295
200MHz/603e /16MB RAM/2.1GB HD/8xCD/28.8	#A1643	\$1,995
180MHz/603e /16MB RAM/1.2GB HD/8xCD/28.8	#A1645	\$1,745

Nikon ELECTRONIC IMAGING Special Sale

SuperCoolScan External \$1649 #S8503

LS-20 Coolscan II \$1159 #S8560

DAYSTAR Genesis MP

360+/2-604e Processors

180MHz/512K Cache #A1626

CALL

We Carry the complete Genesis Line from Daystar®

MAXDOWN

225MHz	\$1049	#A4420	8MB	\$86	#M1448
180MHz	\$919	#A4418	16MB	\$119	#M1451
200MHz	\$757	#A4416	32MB	\$136	#M1454
			64MB	\$145	#M1457

NUPowr 200MHz for PB1400 \$599 #A4566

NUPowr500 Series 167MHz 8MB \$669 #A4564

16Bit Video Out Card \$339 #P3335

CardCAM Video-In Card \$359 #P1036

UMAX Scanners

Mirage 11 x 17 Color Scanner \$8560

PowerLook II w/Full Photoshop \$1829 #S8520

Vista S12 w/Full Photoshop \$689 #S8565

Vista S12 w/Photoshop LE \$619 #S8564

Vista S12 PhotoDeluxe \$539 #S8592

S6E PhotoDeluxe \$299 #S8439

RasterOps/NSA Hitachi

SuperScan MC801HR \$1689 #M6521

SuperScan MC611 17" (26) \$789 #M6529

SuperScan MC20 20" \$1299 #M6525

SuperScan MC801 21" \$1599 #M6527

Global Village

PowerPort PC Platinum 28.8 \$265 #F8150

PowerPort Pro PC 28.8/10B-T \$425 #F8147

Teleport Internet 33.6 Edition \$1259 #F8121

Teleport SpeakerPhone 33.6 \$255 #F8128

Integrated Micro Solutions

TwinTurbo 128M 4MB VRAM \$399 #V9240

TwinTurbo 128M 8MB VRAM \$729 #V9238

FWB Incorporated

SledgeHammer 8200 PCI-U/W \$3449 #H1414

SledgeHammer 17400 PCI-U/W \$3389 #H1418

JH UltraWide PCI Accelerator \$349 #A4434

Hammer DLT 15GB \$3749 #D2583

Atto ExpressPCI-Pro

Ultra Wide Single Channel \$349 #A4568

Ultra Wide Multi Channel \$619 #A4574

Ultra Wide Single raid kit \$519 #A4572

Silicon Express IV NuBus \$529 #A4515

The Latest Software Titles

Microsoft Word 6.01	\$278	#S1300
Microsoft Office 4.2.1	\$420	#S1306
Adobe Photoshop 4.0	\$515	#S1035
Adobe PageMaker 6.5	\$519	#S1025
Adobe Illustrator 6.0	\$343	#S1014
Director MultiMedia Studio	\$836	#S1284

All Prices reflect a Cash Discount. Any other method is 2% higher. Prices are subject to change without notice. All Returns are subject to restocking fee, must be in original package, condition & needs an RMA#.

No Refunds on Labor or Freight Charges. We accept Visa, MasterCard, Discover & American Express. P.O.s are accepted from U.S. Gov't, Schools & Corporations. Call for Details. Not responsible for typographical errors.

We are located at: 6824 CANBY AVE. UNIT#104, RESEDA CA. 91335

Mon-Fri, 8AM to 6PM (Pacific)
Saturday 9am - 5pm

Check out Our Web Site at: <http://www.macmarket.com>

CALL CLUBMAC FIRST!

REMOVABLE STORAGE



Zip 100MB Drive

I044 1010



\$199⁹⁵

~~\$50⁰⁰~~

\$149⁹⁵



Includes One Free Cartridge

Includes One Free Cartridge

Jaz 1.0GB Drive

I044 1014

In Stock



\$499⁹⁵



ClubMac 200MB SyQuest



\$389⁹⁵

C104 1801	ClubMac 200MB 5.25" Removable*	\$389 ⁹⁵
S198 2100	SyQuest SyJet 1.5GB Removable	\$499
N220 1004	Nomai 540MB Removable*	\$249

*Price after \$50 mail-in rebate.

Genuine SyQuest Media

Part	Media	Qty 1	Qty 10	Qty 20
S198 1010	44MB	\$40ea	\$39.50ea	\$39ea
S198 1011	88MB	\$44ea	\$43.50ea	\$43ea
S198 1012	200MB	\$69ea	\$68ea	\$67ea
S198 1014	270MB	\$57ea	\$56ea	\$55ea
S198 2110	1.5GB	\$124.95ea	\$123ea	\$121ea
S198 2011	EZ230MB	\$30ea	\$29.50ea	\$29ea
N220 1005	Nomai 540MB Media			\$59

as low as **\$23**

*Cartridge not included

CD-ROM DRIVES

ClubMac
1800KB/sec data transfer
140ms avg access time
Caddy-less design

\$229

C104 1770

12X



CLUBMAC	ClubMac 12X-Speed CD-ROM Drive	\$229
C104 1770	140ms 1800KB/sec	
C104 1750	ClubMac 8X-Speed CD-ROM Drive	\$169
C104 1730	140ms 676KB/sec	
	ClubMac Nakamichi 4 disk 8X-Speed CD disk changer 140ms 676KB/sec	\$279

CD RECORDABLE

ClubMac
Y010 1002

\$999

Y010 1002

4X



CLUBMAC	ClubMac 2X/4X CD-ROM Recorder	\$999
C104 1770	w/Toast CD ROM Pro 3.0 Mastering software	
YAMAHA	Yamaha 4X CD Recorder	\$999
Y010 1002	w/Toast CD ROM Pro 3.0 Mastering software	

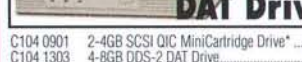
TAPE BACKUP

ClubMac
C104 1303

\$879

C104 1303

DDS-2 DAT Drive



C104 0901	2-4GB SCSI QIC MiniCartridge Drive*	\$429
C104 1303	4-8GB DDS-2 DAT Drive	\$879
C104 1304	12-24GB DDS-3 DAT Drive	\$1249
MEDIA		
T010 1030	3M Travan TR-4 4-8GB	\$39
S100 1043	Sony QW3080XLF QIC/WIDE 2-4GB	\$29
V010 1018	Verbatim 90M 4mm DAT 2-4GB	\$9

REMOVABLE STORAGE

Nomai 540MB

\$249

N220 1004

Includes One 540MB Cartridge

HARD DRIVE STORAGE

Quantum TEMPEST 1280MB
128K CACHE
4500 RPM

\$269

C104 0015

Quantum Atlas II™

\$899

Atlas II C104 0022

4GB

Seagate Barracuda™ 4 LP

8.5ms average seek time
C104 0306

\$1169

4.3GB

ULTRA SCSI

Quantum TEMPEST 3.2GB
128K CACHE
4500 RPM

\$439

C104 0014

IBM	Model Number	Access	Internal	Price	External	Price
2.1GB IBM	07H1125	12ms	C104 1001	\$379	C104 1051	\$439
QUANTUM						
1280MB Tempest	QM31280TMS	10.5ms	C104 0015	\$269	C104 0065	\$329
2150MB Tempest	QM32150TMS	10.5ms	C104 0013	\$339	C104 0063	\$399
3255MB Tempest	QM33255TMS	10.5ms	C104 0014	\$439	C104 0064	\$499
4550MB Atlas II	QM34550ALS	8ms	C104 0021	\$899	C104 0071	\$959
9180MB Atlas II	QM39100ALS	8ms	C104 0022	\$1699	C104 0072	\$1759
SEAGATE						
2.1GB Barracuda 2LP	ST32550N	8ms	C104 0300	\$749	C104 0350	\$809
2.1GB Barracuda 4LP	ST32171N	8.5ms	C104 0308	\$789	C104 0358	\$849
4.3GB Barracuda 4LP	ST34371N	8.5ms	C104 0306	\$1229	C104 0356	\$1229
9.1GB Barracuda™ 9	ST19171N	8ms	C104 0307	\$2199	C104 0357	\$2359
9.1GB Elite 9	ST410800N	11ms	C104 0305	\$2099	C104 0355	\$2199

MEMORY

SOUTHLAND MICRO SYSTEMS

ClubMac Slashes Memory Prices

Guaranteed Compatibility

Memory prices fluctuate frequently, please call for latest prices.

memory as low as **\$22**

32-Bit 72pin SIMMS		
M101 1031	4MB 1X32 70NS	\$25
M101 1054	8MB 2X32 70NS	\$45
M101 1072	16MB 4X32 70NS	\$99
M101 1070	32MB 8X32 70NS	\$199
8-Bit 30pin SIMMS		
M101 1017	1MB 1X8 70NS	\$22
M101 1026	2MB 2X8 70NS	\$25
M101 1042	4MB 4X8 70NS	\$45
64-Bit 168pin DIMMS		
(PCI PowerMac, Umax, PowerComputing)		
M101 1081	8MB DIMM Module	\$55
M101 1082	16MB DIMM Module	\$99
M101 1083	32MB DIMM Module	\$199
M101 1084	64MB DIMM Module	\$425
PowerBook 2300		
M101 2004	8MB Module	\$89
M101 2006	16MB Module	\$199
M101 2008	24MB Module	\$285
PowerBook 190		
M101 1098	4MB Module	\$65
M101 1099	8MB Module	\$99
M101 2000	16MB Module	\$189
M101 2001	24MB Module	\$299
M101 2002	32MB Module	\$349
PowerBook 520, 520C, 540, 540C		
M101 1037	4MB Module	\$59
M101 1059	8MB Module	\$99
M101 1007	16MB Module	\$199
M101 1029	32MB Module	\$375
Video RAM		
M101 1085	2MB VRAM for ATI XClaim GA	\$139
M101 1047	512K VRAM 8100 & 605	\$30
M101 1086	1MB VRAM 7200, 7500, 7600, 8500	\$55
Cache Memory for PowerMacs & PowerPC Performas		
M101 1019	256K level 2 cache 7100, 8100	\$73
M101 1045	512K level 2 cache 7100, 8100	\$285
M101 1087	256K 7200, 7500, 7600, 8500	\$75
M101 1088	512K 7200, 7500, 7600, 8500	\$149

ACCELERATORS

DAYSTAR DIGITAL

nPower 360+ Dual Processor Card for PowerPC!

D040 1058

\$1499

DAYSTAR	nPower 360+	\$1499
D040 1058	nPower 400+	\$1799
D042 1015	MP 400+	\$5499
D040 1050	100MHz Turbo 601	\$799
D040 1055	PowerPC 601	\$349

POWER BACKUP

APC AMERICAN POWER CONVERSION

as low as **\$89**

APC	Back-UPS 200 2 outlets	\$89
A080 1027	Back-UPS 280 2 outlets	\$109
A080 1028	Back-UPS 400 2 outlets	\$149
A080 1029	Back-UPS Pro 420 4 outlets	\$239
A080 1035	Back-UPS Pro 650 6 outlets	\$299
A080 1036	Back-UPS Pro 1000 10 outlets	\$389
A080 1047	Back-UPS Pro 1400 14 outlets	\$525
A080 1044	Back-UPS Pro 1400 14 outlets	\$525

ClubMac

DISCLAIMER: All items manufactured by ClubMac, are returned to ClubMac for warranty repair. All other items carry manufacturer's warranty. MONEY BACK GUARANTEE: All products manufactured by ClubMac carry a 30 day money back guarantee. ClubMac extends all other manufacturer's return policies to its customers. Non-ClubMac products carry 30 day money back guarantee when specified. RETURNS: Call for RMA number! Any product that is returned WITHOUT an RMA number will be refused. ALL PRODUCT INFORMATION AND PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE. NOT RESPONSIBLE FOR TYPOGRAPHICAL ERRORS.

ORDER 24 HOURS A DAY • 7 DAYS A WEEK

1-800-258-2622

Order On-Line @ <http://www.club-mac.com>

Inquiries & International Sales

(714) 768-8130

24 Hours a day 7 days a week

Corporate/Educational Sales

(800) 258-2621

M - F: 5am - 5pm PST

GRAPHIC CARDS

radius Thunder 30/1600
High performance PCI for your Mac
R013 1071



\$699

RADIUS		
R013 1012	Precision Color Pro 24XP (Nubus)	*299
R013 1081	ThunderPower 30/1920 (PCI)	*1199
R013 1086	ThunderPower 30/1600 (PCI)	*799
R013 1085	Thunder 3D (PCI)	*2899
R013 1069	Precision Color 6/1600 (PCI)	*329
R013 1082	PrecisionColor 24/1600 (PCI)	*449
ATI		
A143 1010	XCIclaimGA 2MB PCI video card	*245
A143 1009	XCIclaimGA 4MB PCI video card	*345
A143 1023	XCIclaimGA VR 4MB PCI	*309
INTEGRATED MICRO SOLUTIONS		
I143 1002	Twin Turbo 128M 2MB PCI	*299
I143 1001	Twin Turbo 128M 4MB PCI	*499
I143 1003	Twin Turbo 128M 8MB PCI	*799

NETWORKING

ASANTÉ		
A120 1010	10BaseT FriendlyNet Adapter FN10TA	*29.95
A120 1011	Thin FriendlyNet Adapter FNTNA	*44.95
A120 1041	Thin FriendlyNet Adapter FNBNC	*44.95
A120 1009	10BaseT/Thin FriendlyNet Adapter FN10T/TL	*79.95
A120 1083	10/100 PCI Card w/Net Doubler	*199
A120 1084	10/100 Nubus Card w/Net Doubler	*279
A120 1078	ASANTÉFAST 10/100 Bridge	*889
A120 1081	FriendlyNet PC Card 10BT	*159
A120 1082	FriendlyNet PC Card 10BT/Thin (for PowerBook)	*189
A120 1039	Thin/10BaseT Micro SCSI Ether. Micro ENSC	*265
A120 1001	10BaseT Hub 12 RJ45, 1 AU1, 1 BNC 10THUB/12	*235
A120 1003	10BaseT Hub 8 RJ45, 1 AU1, 1 BNC 10THUB/8	*129
A120 1050	10BaseT Hub 24 RJ45, 1 AU1, 10THUB/24	*379
DAYNA		
D300 1013	MiniHub 5.5 RJ45, 1 cross-over	*89
D300 1029	MiniHub 8 RJ45, 1 cross-over	*119
D300 1057	Hub 16 RJ45, 1 BNC, 1 AU1	*245
D300 1055	Communicator Plus Ethernet 28.8 Fax Modem	*439
D300 1049	Communicator 10BT 10BT/Ethernet	*145
D300 1050	Communicator 10BT BNC 10BT/Thin Ethernet	*169
D300 1044	10/100BT Adapter PCI	*180
D300 1045	10/100BT Adapter Nubus	*319
D300 1058	10/100BT Adapter PDS	*275
D300 1046	100Base-T Hub 12 port fast hub	*1239
FARALLON		
F010 1043	Farallon Fast 10/100 Card Nubus	*239
F010 1019	Farallon 10BT Starlet 8 Hub	*125
F010 1032	Farallon 10BT Starlet 4 Hub	*105
F010 1053	Farallon Ethernet LAN/Modem PC card	*445
F010 1054	Farallon Netopia ISDN Modem	*295
F010 1017	Farallon Etherwave LC 10BT	*149
F010 1055	Farallon Streamline Starlet 16 Hub	*239
F010 1050	Farallon ISDN Internet Router w/Appletalk	*1099

DIGITIZING TABLETS

WACOM ARTZ II 6" x 8" Graphics Tablet
W010 1028



\$298

WACOM		
W010 1026	ArtPad II 4x5	*134
W010 1027	ArtPad II 4x5 w/Dabbler	*149
W010 1028	Artz II 6x8	*298
W010 1029	Artz II 12x12	*425
W010 1030	Artz II 12x18	*695
CALCOMP		
C290 1010	DrawingState II 4x5 w/Dabbler	*99
C290 1002	DrawingState II 6x9	*205
C290 1001	DrawingState II 12x12	*229
C290 1004	DrawingState II 12x18	*299

MONITORS

radius PrecisionView 21 Display
R016 1032



\$2349

RADIUS		
R016 1031	PressView 17SR 17", 1600x1200	*1799
R016 1032	PrecisionView 21 21", 1600x1200	*2349
R016 1034	PressView 21SR 21", 1600x1200	*2999
RASTEROPS		
R053 1031	SuperScan MC20 20", 1600x1200	*1395
R053 1043	SuperScan MC801 21", 1600x1200	*1799
R053 1040	MC15M 15", Monochrome	*229
R053 1041	MC21M 21", Monochrome	*649
NEC		
N026 1031 XV15+ 15", 1024x768		*469
N026 1036 M500 15", 1024x768		*499
N026 1032 XV17+ 17", 1024x768		*799
N026 1037 M700 17", 1024x768		*779
SONY		
S106 1026 Multiscan 100SX 15", 1024x768		*385
S106 1024 Multiscan 200SX 17", 1024x768		*695
S106 1025 Multiscan 200SF 17", 1152x870		*795
VIEWSONIC		
V056 1017 15GA w/Speakers 1024x768 (14" viewable)		*479
V056 1016 17GA w/Speakers 1024x768 (16" viewable)		*699
V056 1024 P810 1600x1200 (20" viewable)		*1699

PRINTERS

HP LaserJet 6MP
H047 1077



\$899

EPSON		
E047 1031	Epson Stylus 500	*279
E047 1022	Epson Stylus Pro XL w/Live Picture 2.5	*1799
HEWLETT PACKARD		
H047 1067	HP DeskWriter 680C Color InkJet	*289
H047 1076	HP DeskJet 870CXI Color InkJet	*498
H047 1077	HP LaserJet 6MP Printer	*899

MODEMS

GLOBAL VILLAGE TelePort Internet Edition 33.6kbps
G050 1025



\$169

GLOBAL VILLAGE		
G050 1025	TelePort 33.6kbps data (Internet Ed)	*169
G050 1019	PowerPort Platinum PC Pro 28.8/10BT	*499
BEST DATA		
B020 1010	Best Data 33.6 Fax/Modem	*89**
*After \$20.00 mail-in rebate.		
U020 1025	28.8 Sportster Voice for Mac 36.6 data	*195
U020 1021	28.8 Sportster for Mac 33.6 data	*169

DIGITAL CAMERAS

EPSON PhotoPC 500 for Mac & PC w/optional LCD Display
E043 1007



\$499

EPSON		
E043 1005	PhotoPC for the Mac Color Digital Camera	*399
E043 1007	PhotoPC 500 for the Mac & PC	*499
E043 1008	LCD Display for PhotoPC 500	*199
KODAK		
K043 1014	Kodak DC25 Camera	*499
K043 1003	Kodak DC20 Camera	*199
K043 1002	Kodak DC50 Zoom Camera	*699

MAC OS SYSTEMS

PowerComputing PowerTowerPro™ 225
P512 1001



\$4295

P512 1009	PowerBase 180LP 180MHz 16MB/1 2GB 8X CD	*1495
P512 1011	PowerBase 240LP 240MHz 16MB/1 2GB 8X CD	*2195
P512 1013	PowerBase 200LP 200MHz 16MB/1 2GB 8X CD	*1895
P512 1022	PowerCenter 132NT 132MHz 16MB/1GB 8X CD 1MB VRAM	*1195
P512 1024	PowerCenter 150NT 150MHz 16MB/1GB 8X CD 1MB VRAM	*2195
P512 1026	PowerCenter 180 180MHz 16MB/2GB 8X CD 1MB VRAM	*2795
P512 1002	PowerTowerPro 200 200MHz 16MB/2GB 8X CD 1MB VRAM	*3795
P512 1001	PowerTowerPro 225 220MHz 16MB/2GB 8X CD 1MB VRAM	*4295

SOFTWARE

Adobe Illustrator 6.0
Upgrade for Adobe Illustrator
A030 1003 5090CD



\$89.95

ADOBE		
A030 1003	Illustrator 6.0 CD upgrade	*89.95
A030 1001	Photoshop 4.0 upgrade	*134.95
A030 1060	PhotoDeluxe 1.0	*79.95
A030 1015	PageMaker 6.5 upgrade	*89.95
A030 1002	Premiere 4.2 upgrade	*134.95
APPLE		
A109 1370	Apple Remote Access Client 2.1	*49.95
A109 1372	Apple Remote Access Personal Server 2.1	*179.95
CASADY & GREEN		
C049 1003	Conflict Catcher 3.04 upgrade	*38.95
C059 1008	SpellCatcher	*59.95
CLARIS		
C089 1002	FileMaker Pro 3.0 competitive upgrade	*95.95
C089 1026	ClarisWorks 4.0 bundled w/CPU or Storage	*59.95
C089 1037	Claris Emailer 1.1	*44.95
C089 1036	Claris OfficeMail 1.0	*275.95
CONNECTIX		
C149 1020	RAM Doubler 2	*28.95
C149 1010	Speed Doubler	*53.95
*After \$25 mail-in-rebate for users of previous versions.		
COREL		
C309 1017	COREL DRAW 6.0 Suite upgrade for Mac	*149.00
C309 1016	COREL WordPerfect 3.5 upgrade for Mac	*89.00
DENEBA		
D059 1009	Canvas 5.0 Upgrade	*129.95
FRACTAL		
F039 1003	Painter 4.0 upgrade	*129.00
F039 1009	Poser	*89.00
F039 1057	Detailer (sidegrade)	*149.00
F039 1055	Expressions (sidegrade)	*149.00
F039 1024	Ray Dream Studio 4.1 upgrade	*149.00
MACROMEDIA		
M209 1027	Extreme 3D	*489.00
M209 1024	Macromedia xRes 3	*399.00
M209 1028	Photographer 4	*329.00
M209 1018	FreeHand 7 Upgrade	*149.00
M209 1037	Director Multimedia Studio 2 upgrade	*489.00
M209 1027	Extreme 3D	*489.00
M209 1046	FreeHand Graphics Studio 7 Upgrade	*199.00
MICROSOFT		
M089 1021	Office Standard 4.21 upgrade CD or Disk	*275.95
M089 1034	Word 6.0.1 upgrade	*118.95
M089 1029	Excel 5.0 upgrade	*118.95
M089 1040	Works 4.0	*49.95
QUARK		
Q069 1001	QuarkXPress 3.3 CD	*658.95

INTERNET SOFTWARE

ADOBE		
A030 1054	PageMill 2.0	*95.95
A030 1051	SiteMill 1.0	*185.95
ALADDIN		
A290 1001	Stuffit Deluxe	*69.95
A290 1005	CyberFinder	*19.95
APPLE		
A109 1348	Apple Internet Connection Kit 1.2 (AICK)	*45.95
CE SOFTWARE		
C209 1010	WebArranger	*79.95
CLARIS		
C089 1039	Claris Home Page 1.0	*99.00
SOFT QUAD		
S609 1001	HotMetal Pro 3.0	*55.00

UMAX Computer Corporation SuperMac C500L
160MHz Super Deal!
U012 1014



\$1299

U012 1014	SuperMac C500L 160MHz 16MB/1 2GB 8X CD	*1299
U012 1015	SuperMac C600L 160MHz 16MB/1 2GB 8X CD 28.8 modem	*1695
U012 1016	SuperMac C600L 200MHz 16MB/2 1GB 8X CD 28.8 modem	*1995
U012 1017	SuperMac C600L 240MHz 16MB/2 1GB 8X CD 28.8 modem	*2295
U012 1011	SuperMac J700L 150MHz 16MB/2 1GB 8X CD 2MB VRAM	*3095
U012 1007	SuperMac S900L 200MHz 32MB/2 1GB 8X CD 4MB VRAM	*3795
U012 1006	SuperMac S900L 180MHz 32MB/2 1GB 8X CD 4MB VRAM	*3595
U012 1007	SuperMac S900L 200MHz 32MB/2 1GB 8X CD 4MB VRAM	*3795
U012 1012	SuperMac S900L 225MHz 32MB/2 1GB 8X CD 4MB VRAM	*4295
U012 1010	SuperMac S900L DP (230MHz) 32MB/2 1GB 8X 4MB VRAM	*4595
U012 1019	SuperMac S900L DP (230MHz) 32MB/2 1GB 8X 4MB VRAM	*4795

SCANNERS

VISIONEER PaperPort Vx
V029 1008



\$279

AGFA		
A055 1022	Agfa SnapScan for MAC 600DPI 24-Bit	*325
A055 1011	Agfa StudioScan IISI	*649
A055 1015	Agfa StudioStar LE w/PhotoShop LE	*825
A055 1017	Agfa StudioStar w/PhotoShop full	*975
A055 1001	Agfa Arcus II Desktop Pro Scanner	*1995
UMAX		
U010 1061	Vista S6E w/PhotoDeluxe	*299
U010 1052	Powerlook II w/transparency adapter	*1995
EPSON		
E045 1026	Epson Expression 636 Upgrade Model	*799
E045 1027	Epson Expression 636 Executive Model	*879
E045 1026	Epson Expression 636 Artist Model	*1299
E045 1026	Epson Expression 636 Pro Model	*1799
RELISYS		
R060 1004	Reli4830-30-bit w/trans adapt, Photoshop LE	*599
Microtek		
M150 1006	Microtek Scanmaker III	*1495
M150 1026	Microtek Scanmaker E3	*199

DIGITAL VIDEO

radius VideoVision Studio 2.5.1
Record full-screen, full-motion, 60 field-per-second digital video input and output on your Nubus Based PowerPC
R013 1018



\$1399

RADIUS		
R013 1018	VideoVision Studio 2.5.1 (Nubus)	*1399
R013 1019	VideoVision Studio 2.0 (PCI)	*3495
TRUEVISION		
T043 1008	Bravado 1000 (PCI)	*699
T043 1017	Targa 1000 (PCI)	*2099
T043 1001	Targa 2000 (PCI)	*3295

Call 1-800-258-2622

for a FREE subscription to the ClubMac Catalog.



ClubMac
SOFTWARE
\$134
\$1699
\$1299
\$1495
\$1679
\$1599
\$1800
\$258
\$2622



Celebrating 10 Years in Business

Shop On-Line • Product Info. • Current Pricing & Much More at...

www.digicore.com



Video

ATI Xclaim GA (2 Meg)	219
IMS TURBO 8 Meg	685
ATI Xclaim GA (4 Meg)	325
Thunder 30/1600	1139
#9 Imagine 128 (8 Meg)	825
EasyColor 24/1360	1299
ThunderColor 30/1152	1475
EasyColor 24/1600	1699
Thunder Color 30/1600	1899
Targa 2000 PCI	3725

Storage

Iomega Zip Drive	189
Quantum 1 GB 3.5"	225
La Cie 1.2 Quantum Ext.	325
La Cie 2.1 Quantum Ext.	399
Iomega Jaz Drive	449
2.2 GB Quantum Atlas	499
4.3 GB Seagate	825
La Cie 4.3 AV IBM Ext.	825
La Cie 9GB AV Ext.	1699
9 GB Seagate	1869
9 GB AV Micropolis	2050
17.2 GB Raid (6 Drives)	5425
External HD or CD Case	65

CONTROLLERS

Atto Express PCI	345
PCI JackHammer Card	365
Atto Silicon Express	2425
FWB Dat's & Arrays	CALL

Imaging

Color Quick Cam	189
Kodak DC 20 Camera	269
SprintScan 35 LE	695
Kodak DC 50 Camera	789
Ricoh RDC-1 w/sound	1649
SprintScan 35 +	1849
SprintScan 45	8175

RCD & Optical

Fujitsu Dynamo 230	469
Pinnacle Tahoe 640	689
Pinnacle RCD 5040	819
Yamaha CD 4X w/Toast	845
FWB HammerCD w/Toast	1250
Pinnacle Vertex 2.6 GB	1359
Apex 4.6 Gig Optical	1565

Newer Technology

MaxPowr 604/180	855
MaxPowr 604/200	999
(For 7500,7600,8500,9500 PM's)	
NuPowr PPC 603/117	399

SOFTWARE SPECIALS

Claris Works	19
PhotoShop V.4.0	399
Illustrator V.6.0	299
MS Office V4.21	279
(Includes Word, Excel, PowerPoint & Mail)	

Over 2600 Mac Hardware Items Available...

FREE
Grolier
Encyclopedia
Must mention AD when Ordering
w/system purchase

PowerBooks Affordable Portables

Targus
Carry Case
\$39 w/PB
Purchase



190CS/66 8-500	1325	45
5300CS/100 8-500	1925	65
5300CS/100 16/750	2299	77
5300C/100 8-500	2345	79
5300C/100 16/750	2639	89
5300CE/117 32/1.1 Gig	2899	98
1400cs/117 12-750	2299	77
1400cs/117 16-750 CD	2775	94
1400c/117 16-1gig CD	3375	114
1400c/133 16-1gig CD	3625	122
PoweBook 4400 Series	CALL	SAVE
Duo 2300 20/1.1 Mdm	1749	59

Memory

Simms • Dimm's • PowerBook
CALL - Guaranteed • Lowest Price
LIFE TIME WARRANTY

Printers



StyleWriter 1500	265	9
HP DW 680C	275	9
Epson Color Stylus 600	289	10
Color StyleWriter 2500	329	11
Color SW Portable 2200	369	12
Epson Color Stylus 800	419	14
HP 870cxi	479	16
Personal LaserWriter 300	589	20
LaserWriter 4/600 PS	789	27
GCC Elite 600 ET	1150	39
LaserWriter 12/640	1450	49
Epson Color Stylus Pro XL	1629	55
LaserWriter 16/600	1875	63
GCC XL 1208	3595	121
Color LW 12/660	5299	179
HP 6MP	875	29
HP 5M	1725	58
HP 4MV	2625	89

Scanners

	Buy	Lease
PaperPort VX	269	9
Umax Vista S6E	289	10
Agfa SnapScan 600 DPI	339	11
Microtek E3	299	12
Microtek E6	539	18
Agfa StudioScan IISI	619	21
UMAX Vista S12 LE	649	22
Epson Expression Exec.	839	28
HP ScanJet 4C	899	30
Agfa Arcus II w/transp.	1719	57
Microtek ScanMaker III	1379	46
Nikon SuperCool Scan	1899	64
Umax PowerLook II Pro	1799	60
Agfa Horizon Ultra	14,889	502

PowerMacs

We can Custom
Configure any System
to meet Your Needs

	Lease
7200/120, 16-1.2GB 8XCD	1249 42
4400/200, 16-1.2GB 8XCD	1619 55
7300/180, 16-2GB 12XCD	2190 74
7300/180, 32-2GB 12XCD	2250 76
7300/200, 32-2GB 12XCD	3035 102
7600/132, 16-1.2GB 8XCD	1598 54
8500/120, 16-2GB CD	1599 54
8500/150, 16-1.2GB CD	1970 66
8500/180, 32-2GB 8XCD	2399 81
8600/200, 32-2GB 12XCD/ZIP	2999 101
9500/200, 32-2GB 8XCD	2865 97
9600/200, 32-4GB 12XCD	3489 118
9500/180MP, 32-2GB 8XCD	3585 123
9600/200MP, 32-4GB 12XCD	4399 148

Performas

	Buy	Lease
Performa 6360/160	1149	39
Performa 6400/180	1249	42
Performa 6400/200	1649	56
Performa 6400 Video Edition	2149	72

Servers

7250/120, 16-2 Gig 8xCD	2325	77
8550/200, 32-2 Gig 8xCD	4885	162
Nets Server's 500 & 700	CALL	Save

MAC CLONES

	CALL	SAVE
All Power Computing	CALL	SAVE
Starmax 3000/160 16/1.2 CD	1489	50
Starmax 3000/200 16/1.2 CD	1649	56
Starmax 3000/240 32/2.5 CD	2435	82
Starmax 4000/160 16/1.2 CD	2060	69
Starmax 4000/200 16/1.2 CD	2375	80
Starmax 4000/200 32/2.5 CD	2545	86
Umax C600 180 16/2.1 CD	1649	56
Umax C600 180 24/2.1 CD	2111	71
Umax 1700 150 16/2.1 CD	2499	84
Umax 5900L 180 32/2.1 8xCD	3269	110
Umax 5900L 225 32/2.1 8xCD	3945	133

Call for All Unlisted Systems

Radius • SuperMac
Sony • NEC • Apple
Phillips • Viewsonic
Nokia • CTX • Sanyo
Nanao • Hitachi...

Monitors

	Buy	Lease
Apple 14" Multiple Scan	285	9
Apple 15" Multiple Scan	355	12
Apple 15" AV Display	445	15
Apple MultiScan 1705	599	20
Magnavox 17" MultiScan	625	21
Sony 17 200SX MultiScan	649	22
ViewSonic 17GS	675	23
Sony 17 200SF MultiScan	729	25
Nec XV 17+ Monitor	789	26
AppleVision 1710	849	29
Portrait Pivot 17"	925	31
AppleVision 1710AV	925	31
Radius PressView 17SR	1850	62
ViewSonic 20G	1225	41
RasterOps SuperScan 20	1343	45
Apple 20" Multiple Scan	1750	59
RasterOps 21HR .22dpi	1965	66
ViewSonic 29" 29GA	2289	77
Radius PressView 21SR	2999	101

**HUGE INVENTORY OF
NEW MACINTOSH
PRODUCTS AT THE
LOWEST PRICE!!
Sales & Leasing**



Lease
\$53
per mo

7200/120 Starter

PowerMac 7200 16-1.2 CD
Apple 14" MultiScan,
Ext. Keyboard
Sale Price.....\$1579

Add \$75 for 15" Monitor
Add \$99 to Upg. to 32 Meg.



Lease
\$67
per mo

7600 Work Station

PowerMac 7600/132, 16-1.2 8XCD
Apple 15" MultiScan Display
Extended Keyboard
Sale Price.....\$1999

Add \$145 for 33.6 Fax/Modem



Lease
\$114
per mo

8500 "AV" Station

PowerMac 8500/180 32/2 Gig HD
Apple 1710 AV Monitor
Extended Keyboard
Sale Price.....\$3369

**GE On-Site Service
Available for any Systems**

DigiCore

We will Beat any Verified Competitors Price*

Order Toll Free

800-858-4622

International & Dealers

818-785-2800

24 hr FaxLine

818-785-3100

E-Mail Us

sales@digicore.com

All Major Credit Cards • CODs
Wire Transfers • Corporate POs

Open 7am - 6pm M-F & 8am to 1pm Sat. Pacific Time

Due to publication time constraints prices may vary.

Call Us for the Lowest and Most Current Price.


Lease Payments based on 36 Mo. Business Lease.

Leasing is Available to Approved Business & Individuals.

Possible Restocking Cash (COD) DISCOUNT & Subject to Availability.

All Returns/Repairs require an RMA Number.

DigiCore Inc. 15500 Erwin St. • Van Nuys CA 91411



Focus
16-Port
10BT Hub
\$139



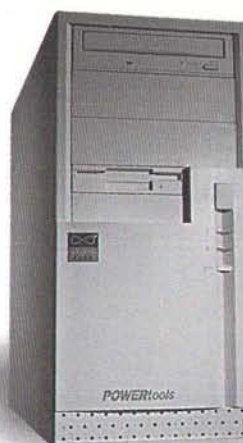
**TelePort
Platinum
\$159**



**IMS
TwinTurbo
2mb \$199
4mb \$299**



**\$299
64MB Dimm**



**PowerTools
Mac OS
clones*.
Build your
own box
and save!
Prices start at
\$999**

*Easy upgrade path
to faster processor.

Vlewsonic

Optique V655 15"	329
Optique V775 17"	649
15ES .28mm 15"	348
15GA w/Speakers 15"	429
17GA .27mm w/Speakers 17"	719
17EA .28mm w/Speakers 17"	639
PT810 .30mm 21" 1800x1440	1749
P810 .25mm 21" 1600x1200	1699
G810 .25mm 21" 1600x1200	1539
P815 Mega .25mm 21"	1789
29GA Mega .25mm 29"	2389

Mac Adapters available.

\$RAM\$

4/8MB 72pin	26/39
16MB 72pin	69
32MB 72pin	169
8MB DIMMs/EDO 5v	42
16MB DIMMs/EDO 5v	89
32MB DIMMs/EDO 5v	169
64MB DIMMs TechWorks	299
EDO 3.3 volt	Call
PCI Vram 1MB	29
256k Cache (6100/7100)	29
512K Cache (7500)	129

All memory backed by a lifetime warranty.

Favorite Software

Apple System 7.6 CD-ROM	99
Adobe Photoshop v4.0	459
Illustrator v6.0 w/PageMill	399
Adobe After Effects v3.0	549
Adobe After Effects v3.0 Prod.	1299
Specular 3D Web Workshop	149
Adobe PageMill v2.0	98
Freehand v7.0	389
Freehand v7.0 Upgrade	148
Quake Xpress v3.32	639
Warcraft II	48
Command & Conquer	45

POWERtools

Infiniti 3180 180Mhz-603e	999
Infiniti 3200 200Mhz-603e	1099
Infiniti 4200 200Mhz-604e	1499
Infiniti 3200 16/2.5/CD	1599
Infiniti 4200 16/2.5/CD	1999
3200 Digital Video Workstation	4299
4200 Digital Video Workstation	4699

Add Ons:

Internal/External SCSI	49
12x Speed CD-ROM	199
2.5GB Internal HD	299
512k Cache Upgrade	199

Monitors



**Viewsonic
G810
\$1539**

Apple 15" Multiscan	409
Apple 15AV 15"	499
Apple 1705 17"	689
Apple 20" Refurbished	1379
Iiyama MT-8617E 17"	729
Iiyama MT-9021E 21"	1629
Magnavox 14" Mono	129
NEC M500 15"	489
Princeton Graphics 17"	539
Panasonic S17 17"	649
Portrait Display 17" .28	889
RasterOps Mc 21 HR	2039
Sony 200 SX 17"	695
Sony 20" SFI	1689
Mitsubishi 91TXM	1699

Digital Imaging

Kodak DC25	459
Kodak DC40/DC50	539/839
Epson PhotoPC	389
Casio QV10A	395
Polaroid PDC 2000/40	3399
AGFA DuoScan Dual-Mode	4799
Arcus II Mac/PC	1879
StudioScan II to IIs Upgrade	149
StudioStar Mac/PC	995
Microtek ScanMaker E3	319
Microtek ScanMaker III	1449

Shipping: \$5, 5 lbs., 2 Days Payment: No surcharge on credit cards. Corporate POs welcome. Tax: Texas residents add 8.25% sales tax. Prices: Items, prices and availability subject to change. Returns: Call for RMA number. Must be in original condition, opened software is non-refundable. Subject to a restocking fee. Original shipping is non-refundable. Apple brand products are not returnable for refund. Bottom Line Distribution cannot be responsible for errors in typography or photography. Customer Service: 512-892-4090.

International Sales: Bottom Line Distribution is committed to the needs of the international Macintosh user. We offer discounted rates with DHL. Delivery to most countries is 2 to 3 days. Dealer inquiries are welcome. Language interpreters available. Address: 4544 S. Lamar Blvd., #100, Austin, TX 78745

Video Cards

MicroConversions 2MB PCI	179
630/6200/6300 2MB LC/PDS	249
MacPicasso Nubus 2MB VRAM	319
ATI Xclaim VR 2MB	223
ATI Xclaim VR 4MB	307
IMS TwinTurbo 8mb	679
Radius Thunder Power 30/1920	1239
Thunder IVGX-1600 Nubus	899
RasterOps Opticolor 4MB	599
RasterOps Opticolor 8MB	1199

DigitalVideo	
MiroMotion DC20 PCI	559
TrueVision Bravado PCI	669
Targa 1000 PCI	1599
Targa 2000 PCI	2199
Targa 2000 Pro	4999
Radius VideoVision Studio PCI	3299

Hot Deals

GV PowerPort Mercury PB5xx	139
GV PowerPort Gold PCMCIA	79
Delrina FAX Pro v1.5	10
Supra Express 33.6 Modem	126
Mouse Systems ADB Mouse/Pad	26
Processor Upgrades	
Apple 150Mhz 604 Upgrade	399
Newer MAXPowr 180Mhz 604e	798
Newer MAXPowr 200Mhz 604e	979
Magic PowerClock 84Mhz 61xx	39
Magic PowerClock 84Mhz 71xx	49
SCSI Accelerators	
ATTO Ultra SCSI-3 Single PCI	359
ATTO Ultra SCSI-3 Dual PCI	669
ATTO Dual PCI Pro Kit	839
FWB Jackhammer PCI Ultra	379
Adaptec 2940UW Ultra PCI	319
Adaptec 3940UW Dual PCI	579

Iomega




**Iomega Zip Drive
External
\$189**

Zip Drive External	189
Zip Drive Int. 3.5"	199
Zip Mounting Kits	29
Zip Cartridge 10Pack	139
Jaz Drive External	479
Jaz Drive Internal	379
Jaz Mounting Kits	29
Jaz Cartridge Single	99
Jaz Cartridge 5Pack	489
Zip/Jaz Carrying Case	29

PowerBook Accessories

Powerbook 5300	
16MB	139
24MB	249
32MB/48MB	299/399
Powerbook 5xx	
16MB/32MB	149/239
Powerbook 1400	
8MB/16MB/24MB	Call
Accessories	
PB1400 8bit Video Upgrade	159
PowerBook Display Adapter	29
PB Deluxe Carrying Case	39
PB Display Adapter (VGA/Mac)	35

Apple



**8500/120
\$1799**

Performa 6360/160 16/1.2/8x	1139
7300/180 16/2/12xCD	2769
7600/120 16/1.2/4xCD	1639
7600/132 16/1.2/8xCD	1999
8500/120 16/2GB/4xCD	1999
8500/150 16/1.2/8xCD	2349
8500/180 32/2.0/8xCD	2999
9500/132 16/2GB/CD	2395
9500/180MP 32/2.0/8xCD	4995
9500/200 32/2.0/8xCD	3695
Performa 6400 16/1.6/8xCD	1349
Color Stylewriter 2500 Inkjet	299
Color Stylewriter 1500 Inkjet	229

Popular Add-Ons

Labtec LCS-3210 w/3D Sound	84
Labtec LCS-2612 w/3D Sound	109
Labtec LCS-1020 9watt	41
Altec Lansing ACS500	313
Yamaha YST-15	69
Apple Design	79
Apple Extended	149
Addresso NuForm Ergonomic	61
DGR Extended Keyboard	39
Interex 105 Keyboard	46
3-Port Serial Switch Box	29
Wacom 6x8	299
Personal Surge Arrest 7/Outlet	29



**BOTTOM LINE
DISTRIBUTION**
1-800-990-5794



radius

Quantities are Limited...

AWARD WINNING PRODUCTS

DISPLAYS

TWENTY ONE INCH DISPLAYS



21 Inch DiamondTron Monitor

\$1599*

\$1599*

- Rated Superior to Trinitron
- 2 year Mfr's Warranty on some models
- Largest Aperture Grille monitor available
- Up to 1600x1200 on Macs and PCs
- Full Digital Control from Keyboard



Radius SuperMatch 21 TXL

from \$1699*

Radius PrecisionView 21

from \$2899*

Radius PressView 21sr

\$CALL

NEC 20" & 21" Displays

\$1499*

Radius PrecisionColor Display 21

\$CALL

RasterOps SuperScan MC 21

\$CALL

Radius Multiview 21

\$CALL

Radius 21 inch Grayscale Display

\$799

*With qualifying videocard, accelerator, or computer purchase

TWENTY INCH DISPLAYS

TRINITRON BLOWOUT-LOWEST PRICE EVER!

While Supplies Last!

\$999*

20" SONY Trinitron Technology

- Industrial Grade CRT
- Two page WYSIWYG output



SuperMac SuperMatch 20 Plus

\$999*

Radius PrecisionColor 20v

\$1099*

Digital 20 inch Display Up to 1280x1024

\$1399

RasterOps 20 Multimode

\$1299

Radius PrecisionColor 19

\$899*

Radius IntelliColor Display 20

\$1499*

- MacUser, MacWorld, MacWeek Editor's Choice
- 1600x1200 to 640x480

Apple Multiple Scan 20 Display

SuperMac Trinitron

Radius 20 inch Grayscale Display

\$CALL

from \$1099

\$699

*With qualifying videocard, accelerator, or computer purchase

SEVENTEEN INCH DISPLAYS

SuperMac/E-Machines T16II MR

\$599*



- Studio Grade Trinitron CRT
- 0.26 Dot Pitch

SuperMatch 17T TRINITRON

\$699

PrecisionColor Display 17

from \$899

PrecisionView 17

\$CALL

Radius PressView 17sr

\$CALL

SuperMac SuperMatch 17

from \$499*

*With qualifying videocard, accelerator, or computer purchase.

PORTRAIT DISPLAYS

Radius Pivot Display

\$199*

We have cards for SE/30, LC, IIsi
Nubus, and Quadras

*With purchase of video card.

PrecisionColor Pivot

\$599

Color Pivot LE

\$399

Radius Full Page Display

\$299

Apple Portrait Display

\$399

Portrait Display Labs 1700

\$CALL

E-machines ColorPage 15 with NUBUS card

\$499

VIDEO CARDS

1600x1200 PCI & NUBUS

IMS Twin Turbo 128M

MacWEEK

\$199

- 1600 x 1200 to 640 x 480 resolutions
- MPEG video playback
- 128-bit wide architecture
- 2MB Interleaved VRAM, upgradeable to 4MB



Radius Thunder II & IV GX Cards

\$BELOW COST

Radius Thunder 3D

\$CALL

Radius ThunderColor 30/1152 & 1600

\$CALL

Radius ThunderPower 30/1920

\$CALL

Radius PrecisionColor 8/1600

\$399

21" RESOLUTIONS

Radius 24-bit cards

from \$399

Radius PrecisionColor 24X

\$599

Thunder 8 "Fastest 8 bit card ever"

\$CALL

Thunder 24 & Thunder 24/GT*

from \$499

Radius LeMans GT

\$799

SuperMac Ultra LX*

\$799

RasterOps Horizon 24*

\$899

RasterOps Prism GT

\$CALL

Radius PrecisionColor 8XJ

\$499

*DSP Available

20/19" RESOLUTIONS

Radius 24-bit cards

from \$289

SuperMac Spectrum 24 Series V

\$599

Radius PrecisionColor Pro 24XK

\$CALL

SuperMac Futura MX

\$299

RasterOps PaintBoard Lightning

\$CALL

SuperMac Spectrum 8

\$189

PowerView/SuperView for Powerbooks

\$199/\$299

17/16" RESOLUTIONS

Radius 24-bit video cards

from \$189

Radius PrecisionColor Pro 24XP

\$CALL

SuperMac Futura SX

\$299

RasterOps 24 MX

\$399

PHOTOSHOP ACCELERATION

Radius PhotoEngine



\$389*

- Four AT&T 3210 66MHz DSPs
- Accelerates Photoshop Filters
- Up to 15x acceleration on all Macs
- MacUser Editor's Choice
- Available in Daughtercard or NUBUS versions

Radius Photo Booster for Quadra/PDS or Rockets

from \$199

SuperMac DSP daughter cards for Thunder/Ultraras

\$299

COLOR CALIBRATORS



SuperMac Display Calibrator

\$199

SuperMac Display Calibrator PRO

\$399

Radius Mac ProSense Calibrator

\$799

PRINTERS

QMS 860 Hammerhead

\$1999

- 600 dpi 11 x 17
- PostScript Levels 1&2
- 8ppm heavy-duty Canon engine
- Powerful RISC processor



EPSON Stylus Pro XL 2-YEAR WARRANTY!

\$1299

- 12" x 18" full-bleed color output
- 720x720 dpi for photo-quality proofing

GCC Elite XL series 800dpi (11.6" x 20")

from \$1999

Hewlett-Packard 4MV

\$2499

Radius ProofPositive Dye-Sublimation

\$CALL



Ask about Printers available in 220v!

www.cra-sys.com

AT OR BELOW DEALER COST!

POWER MACS

• Dealer Pricing
on all models of
SUPERMAC!!

• Big Savings
on Bundles!!

• FREE software
with every
system!!

• UMAX 1 YEAR ON-SITE WARRANTY!!



SuperMac C500L 160MHz 603e/16MB RAM/1.2GB HD/8x CD	after rebate only \$1299
SuperMac C600L 180MHz 603e/16MB RAM/1.2GB HD/8x CD	\$1699
SuperMac C500L 200MHz 603e/16MB RAM/2.1GB HD/8x CD	\$1995
SuperMac C600L 240MHz 603e/16MB RAM/2.1GB HD/8x CD	\$2295
SuperMac J700L 150MHz 604e/16MB RAM/2.1GB HD/8x CD	\$2795
SuperMac J700L 180MHz 604e/24MB RAM/2.1GB HD/8x CD	\$3095
SuperMac S900L 180MHz 604e/32MB RAM/2.1GB HD/8x CD	\$3595
SuperMac S900L 200MHz 604e/32MB RAM/2.1GB HD/8x CD	\$3795
SuperMac S900L 225MHz 604e/32MB RAM/2.1GB HD/8x CD	\$4295
SuperMac S900L DP (2)180MHz 604e/S/32MB RAM/2.1GB HD/8x CD	\$4595

*FREE ClarisWorks, Netscape Navigator & Internet Access with every CPU purchase !! *

• Dealer Pricing
on all models of
StarMax!!

StarMax™

• 5 YEAR WARRANTY!!

StarMax 3000, 603e/160 16MB RAM, 1.2 HD, 1MB VRAM 8X CD, 256K L2, 28.8	\$1489
StarMax 3000, 603e/180 16MB RAM, 1.2 HD, 1MB VRAM 8X CD, 256K L2, 28.8	\$1595
StarMax 3000, 603e/200 16MB RAM, 1.2 HD, 1MB VRAM 8X CD, 256K L2, 28.8	\$1995
StarMax 3000, 603e/200 32MB RAM, 2.5 HD, 1MB VRAM 8X CD, 256K L2, 28.8	\$2195
StarMax 3000, 603e/240 32MB RAM, 2.5 HD, 4MB VRAM 8X CD, 512K L2, 28.8	\$2795
StarMax 4000, 604e/160 16MB RAM, 1.2 HD, 2MB VRAM 8X CD, 512K L2	\$2295
StarMax 4000, 604e/160 32MB RAM, 2.5 HD, 2MB VRAM 8X CD, 512K L2	\$2895
StarMax 4000, 604e/200 16MB RAM, 1.2 HD, 2MB VRAM 8X CD, 512K L2	\$2995
StarMax 4000, 604e/200 32MB RAM, 2.5 HD, 2MB VRAM 8X CD, 512K L2	\$3195

PRICES CHANGE FREQUENTLY - CALL FOR TODAY'S BEST DEAL!!

All Apple PowerMacs
Available -- CALL for
Lowest Prices Ever!!

Radius 81/110

FACTORY CLOSE-OUT! LAST CHANCE!

Price with monitor purchase



GUARANTEED LOWEST PRICE ON ALL DIGITAL VIDEO!

TRUEVISION Targa 2000

- 16-bit audio up to 48KHz
- NTSC: 30 frames/60 fields per second,
- Supports PAL broadcast standards

Other Truevision Products:

- Targa 1000/2000 Pro
- BRAVADO/Targa 1000

NEVER UNDER SOLD!!



Video Vision Studio, PCI and Nubus

- 24bit Full-Screen, Full-Motion Video
- Includes Adobe Premiere and VideoFusion
- Breakout bar supports dual input

CALL FOR
BEST PRICE!!

Video Vision Studio Array 4-12GB

Radius Spigot Pro AV \$999

- 24bit Full-Screen, Full-Motion Video

Radius Spigot Power AV \$799

Video Vision Telecast

- Full-motion, broadcast-quality video
- Available as upgrade for Video Vision Users

miroMOTION DC30 M-JPEG PCI video capture & playback

Spigot II Tape Now Bundled with Adobe Premiere

VideoSpigot Cards Nubus/LC/IIsi

\$INSTOCK!



Compare at \$4999
Now \$2999

CALL

\$499

from \$99

BEST DIGITAL VALUE ANYWHERE!

Full Digital Video Workstation
for less than a
PCI Digital Video card alone!!

SAME TECHNOLOGY FOR HALF THE PRICE!!

RADIUS 81/110

32/2GB AV Drive/CD with Video Vision

only \$2998



RADIUS
81/110

\$999
from



SET-UP WAIVED!
10 FREE DAYS
With every purchase!



THE MOST KNOWLEDGEABLE SALES STAFF IN THE INDUSTRY!

New and Factory
Recertified Models
of Most Items
Available

CRA Systems, Inc.

300 South 13th St., Waco, TX 76701

Monday thru Friday 9AM to 7PM CST Saturday 10AM-4PM Sales Dept. Only

Domestic Sales sales@cra-sys.com Fax 817.750.9050

Consultants/Dealers 817.754.2120 International Sales 817.754.2120

Prices reflect 2% cash discount. Prices subject to change. Not liable for typographical

errors. All shipping charges for COD orders to be secured by credit card.

Dealers and consultants call for quantity pricing. We ship anywhere.



800/375-9000

Circle 20 on reader service card

MACWORLD April 1997 173



your **Macintosh®** catalog SuperStore™

Serving Mac users since 1986

BOCA

RESEARCH INC.

**NEW
LOW PRICE!**

Boca FastMac V.34 External Faxmodem

- 33.6 Kbps data transfer speed
- Error control and data compression up to 115,200 bps throughput
- Includes MacComCenter communications software
- Perfect for downloading graphics, video and sound files off the Internet
- 14,400 bps fax speed

\$20 REBATE!
Mac Zone Reg. Price ~~\$109⁹⁸~~
Mfr. Mail-in Rebate - \$20⁰⁰
Your Price After Rebate \$89⁹⁸
Order #82765

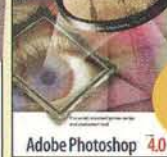


**Hewlett-Packard
HP LaserJet
6MP Printer**

- 8 ppm black; true 600 dpi
- 128 levels of gray

Only \$949⁹⁸
#82666

Adobe Photoshop 4.0 Upgrade



Only \$134⁹⁸
#83084

Batch-process files with a single click!
New features improve productivity!



**7.5 to 7.6 Upgrade
w/FREE Apple
Internet Connection
Kit 1.2**

Only \$68⁹⁸
#80148

Microsoft Office 4.2.1 Standard w/Essential Tools

The most popular office suite - now with Internet power

Only \$274⁹⁸
#83316

Int. \$298⁹⁸

PERFORMANTZ

Ext. \$359⁹⁸
Performantz 1.1GB Hard Drives
High capacity, low price!

EZ Drive

Includes FREE EZ135MB Cartridge!



SyQuest EZ135 Blowout
Removable Cartridge Drive
While supplies last!

Only \$119⁹⁸
#24935



Astarte Toast CD-ROM Pro Upgrade
Makes CD creation easier than ever before!

Only \$99⁹⁸
#81698



Panasonic PM17 Multimedia Monitor

**With purchase of any computer.
Low Mac Zone price \$679.98

Only \$599⁹⁸**
#38726



Macromedia FreeHand Graphics Studio 7 Upgrade

• FreeHand 7 design and page layout

• xRes 3 for high-res image-editing

• 3D animation with Extreme 3D

• Fontographer for type design

Only \$198⁹⁸
#81014



MacInTax Deluxe Final 96/Quicken Deluxe 7.0 Bundle

\$30 REBATE!
Mac Zone Price ~~\$89⁹⁸~~
Mfr. Mail-in Rebate - \$30⁰⁰
Your Price After Rebate \$59⁹⁸
Order #06188

ADD MEMORY

**BOOST YOUR MAC'S PERFORMANCE!
16MB KIT**

Only \$99⁹⁸
#38362

UNLIMITED PORTABLE STORAGE

Zip™ Drive

- Unlimited storage on inexpensive 100MB disks
- Includes one 100MB disk!

*After \$50 Mfr. Mail-in Rebate. Low Mac Zone Price \$199.98. Rebates are limited to 4 per household. Offer expires 3/31/97.

Only \$149⁹⁸*
#91825

UMAX Vista S6E

- 600x 300 dpi
- Single-pass, 24-bit scanning

*After \$20 Mfr. Mail-in Rebate. Low Mac Zone Price \$299.98. Offer expires 2/28/97.

Only \$279⁹⁸†
#83501

UMAX®
The Magic of Color™

Before you buy, call The Mac Zone
1-800-436-0606

Fax (206) 430-3500 • International (206) 430-3560

www.maczone.com

CORPORATE SALES GOVERNMENT SALES EDUCATION SALES
1-800-372-9663

A **NASDAQ®** COMPANY Ticker Symbol: **MZON**

Add applicable sales tax (only in OH, WA). All shipments refer to "in stock" items, barring system failure, etc. Not responsible for typographical errors. Credit cards are not charged until the order is shipped. Most products ship the same day for overnight delivery. Overnight delivery is only \$3 for the first 5 pounds and \$1 for each additional pound. Call for international shipping rates. Returns subject to a restocking fee. Prices and product availability subject to change without notice. Specials and promotions may be limited to stock on hand.

© Copyright 1997 The Mac Zone is a registered trademark of Multiple Zones International Inc. All rights reserved.

Full Line of Apple® Macintosh® Computers



Over 6000 Products



Overnight Delivery only \$3 (up to 5 lbs)



The Hottest Bundles!



Low Prices Everyday

ORDER ANYTIME
24 HOURS A DAY
7 DAYS A WEEK



Authorized Catalog Reseller



Power Computing®
A complete family - from entry level to top-of-the-line Mac-compatibles!

PowerBase Series Computers

#83734	603e, 180MHz, 16/1.2GB, 8X CD Low Prof.....	\$1495
#83737	603e, 180MHz, 16/1.2GB, 8X CD Minitower.....	\$1595
#83733	603e, 200MHz, 16/1.2GB, 8X CD Low Prof.....	\$1795
#83736	603e, 200MHz, 16/1.2GB, 8X CD Minitower.....	\$1895
#83732	603e, 240MHz, 16/1.2GB, 8X CD Low Prof.....	\$2195
#83735	603e, 240MHz, 16/1.2GB, 8X CD Minitower.....	\$2295

PowerCenter Series Computers

#91537	604, 132MHz, 16/1GB, CD-ROM Low Prof.....	\$1895
#91535	604, 132MHz, 16/1GB, CD-ROM Low Prof.....	\$1995
#91538	604, 150MHz, 16/1GB, CD-ROM Low Prof.....	\$2095
#91536	604, 150MHz, 16/1GB, CD-ROM Low Prof.....	\$2195

PowerTower Series Computers

#86649	604e, 180MHz, 16/2GB, 8X CD-ROM Tower.....	\$3295
#86648	604e, 200MHz, 16/2GB, 8X CD-ROM Tower.....	\$3595
#83731	604e, 180MHz, 32/2GB, 8X CD, AV, Jaz Drive.....	\$4455
#83730	604e, 200MHz, 32/2GB, 8X CD, AV, Jaz Drive.....	\$4755

PowerTower Pro Series Computers

#86642	180MHz, 16/2GB, 8X CD-ROM.....	\$4195
#86643	200MHz, 16/2GB, 8X CD-ROM.....	\$4495
#86644	225MHz, 16/2GB, 8X CD-ROM.....	\$4995
#86646	180MHz, 32/2GB, 8X CD-ROM, AV, Jaz Drive.....	\$5414
#86647	200MHz, 32/2GB, 8X CD-ROM, AV, Jaz Drive.....	\$5714
#86645	225MHz, 32/2GB, 8X CD-ROM, AV, Jaz Drive.....	\$6214



Power Computing

*Prices and configurations subject to change without notice.
Ask your Sales Advisor to confirm your order.

Shop The Mac Zone
ONLINE!

Online Shopping
Internet Address:
Visit our store on the Web!
www.maczone.com
CompuServe type:
GO MZ

The Mac Zone -
Trusted Internationally

Australia	Holland	Poland
Austria	Hong Kong	Portugal
Belgium	Indonesia	Singapore/Malaysia
Brazil	India	Spain
Central America	Israel	Sweden
Chile	Italy	Switzerland
Colombia	Japan	UAE/Middle East
Denmark	Kenya	United Kingdom
France	Mexico	Venezuela
Germany	New Zealand	

Your Source Code
MW704

Circle 71 on the reader service card

UMAX®
Computer Corporation

The SuperMac Series†
Featuring the absolute lowest price for a new Mac-compatible!

#81530	C500L 603e, 160MHz, 16MB/2.1GB, 8X CD-ROM.....	\$1349
#81531	C600L 603e, 180MHz, 16MB/2.1GB, 8X CD, 28.8 Modem.....	\$1695
#81532	C600L 603e, 200MHz, 16MB/2.1GB, 8X CD, 28.8 Modem.....	\$1995
#81533	C600L 603e, 240MHz, 16MB/2.1GB, 8X CD, 28.8 Modem.....	\$2295
#90937	J700L 150MHz, 16MB/2.1GB, 6.7X CD-ROM Desktop.....	\$2795
#81534	J700L 180MHz, 24/2.1GB, 6.7X CD-ROM Desktop.....	\$3095
#90936	S900L 180MHz, 32MB/2.1GB, 8X CD-ROM, IMS.....	\$3595
#90935	S900L 200MHz, 32MB/2.1GB, 8X CD-ROM, IMS.....	\$3795
#81529	S900 225MHz, 32MB/2.1GB, 8X CD-ROM, IMS.....	\$4295
#90934	S900L 180DP, 32MB/2.1GB, 8X CD-ROM, IMS.....	\$4595

†Prices and configurations subject to change without notice.
Ask your Sales Advisor to confirm your order.



MOTOROLA

Motorola StarMax Series
Stable, reliable performance from the creators of the PowerPC™ chip

#80865	3000/180 603e, 160MHz, 16/1.2GB, 8XCD, 28.8, Desktop...	\$1595
#80866	3000/180 603e, 160MHz, 32/2.5GB, 8XCD, 28.8, Minitower...	\$1895
#81523	3000/200 603e, 200MHz, 16/1.2GB, 8XCD, 28.8, Desktop...	\$1995
#81524	3000/200 603e, 200MHz, 32/2.5GB, 8XCD, 28.8, Minitower...	\$2195
#81525	4000/160 604e, 160MHz, 16/1.2GB, 8XCD, 28.8, Desktop...	\$2295
#80867	3000/240 603e, 160MHz, 32/2.5GB, 8XCD, 28.8, Minitower...	\$2795
#81526	4000/160 604e, 160MHz, 32/2.5GB, 8XCD, 28.8, Minitower...	\$2895
#81527	4000/200 604e, 200MHz, 16/1.2GB, 8XCD, 28.8, Desktop...	\$2995
#81528	4000/200 604e, 200MHz, 32/2.5GB, 8XCD, 28.8, Minitower...	\$3195

Sleepless in Seattle...

You bet! We're here 24 hours a day, 7 days a week to serve you when you need us.

1-800-436-0606
Call Today for Your **FREE CATALOG!**

YES! START MY FREE 1-YEAR CATALOG SUBSCRIPTION ASAP!

☐ MAC ZONE ☐ PC ZONE

Name _____
Address _____ Apt _____
City _____ State _____ Zip _____
Mail to: The Mac Zone, 707 South Grady Way, Renton, WA 98055-3233

I buy primarily for:
Home Use
Business Use
Work-from-Home Use

Your Source Code
MW704



ProDirect

Work Faster,
Work Smarter.

ProDirect
EQUIPPED

ProDirect

Make Yours a
ProPowerMac

with ProDirect Storage and
Acceleration Components!

ProDirect PowerStor



ProDirect Speed Tuned Hard Drives

At ProDirect we take the time to speed-tune each hard drive to exact manufacturers optimum operating specifications for the Macintosh, and put it through a rigorous test-run inspection routine to insure that it is dialed-in to its peak level of performance.

SPEED-TUNED HARD DRIVES

FAST SCSI 2

FAST SCSI 2 allows for transfer rates of up to 10 Megabytes Per Second.

SIZE	DRIVE	SEEK TIME	INTERFACE	INTERNAL	POWERSTOR
240MB	Quantum LPS	10ms	Fast SCSI 2	110	170
540MB	Quantum Fireball	9ms	Fast SCSI 2	155	215
540MB	IBM DeskStar	10ms	Fast SCSI 2	155	215
1080MB	Quantum Atlas	8ms	Fast SCSI 2	289	349
1280MB	Quantum Tempest	10.5ms	Fast SCSI 2	245	315
2.0GB	Quantum Atlas	8ms	Fast SCSI 2	545	615
2.1GB	Micropolis 4221AV	8.5ms	Fast SCSI 2	595	655
2.1GB	Micropolis 4421	8.5ms	Fast SCSI 2	399	469
4.3GB	Micropolis 3243AV	8.5ms	Fast SCSI 2	925	995
4.3GB	Seagate Barracuda 4	8ms	Fast SCSI 2	1149	1219
4.3GB	Quantum Atlas	7.9ms	Fast SCSI 2	935	1035
9.0GB	Seagate Elite	11ms	Fast SCSI 2	1875	1975
9.0GB	Micropolis 1991	11ms	Fast SCSI 2	1675	1775
9.0GB	Micropolis 1991AV	11ms	Fast SCSI 2	1795	1895

FAST & WIDE SCSI 2

FAST & WIDE SCSI 2 allows for transfer rates of up to 20 Megs / Sec.*

SIZE	DRIVE	SEEK TIME	INTERFACE	INTERNAL	POWERSTOR
2.0GB	Quantum Atlas	8ms	Fast & Wide SCSI 2	595	695
2.1GB	Micropolis 4221WAV	8.5ms	Fast & Wide SCSI 2	675	775
4.3GB	Micropolis 3243WAV	8.5ms	Fast & Wide SCSI 2	975	1075
4.3GB	Seagate Barracuda Wide	8ms	Fast & Wide SCSI 2	1245	1195
4.3GB	IBM Ultrastar XP Wide	8.5ms	Fast & Wide SCSI 2	995	1095
9.0GB	Seagate Elite	11ms	Fast & Wide SCSI 2	1975	2075
9.0GB	Micropolis 1991WAV	11ms	Fast & Wide SCSI 2	1875	1975

ULTRA SCSI 3

ULTRA SCSI 3 allows for transfer rates of up to 20 Megs / Sec.*

SIZE	DRIVE	SEEK TIME	INTERFACE	INTERNAL	POWERSTOR
2.1GB	Quantum Tempest	10.5ms	Ultra SCSI 3	319	389
2.2GB	IBM Ultrastar ES	8.5ms	Ultra SCSI 3	339	399
2.5GB	Seagate Barracuda 2	8ms	Ultra SCSI 3	765	835
3.2GB	Quantum Tempest	10.5ms	Ultra SCSI 3	379	439
4.3GB	Micropolis Tomahawk 4345	7.9ms	Ultra SCSI 3	925	995
4.3GB	IBM 34320	7.9ms	Ultra SCSI 3	855	935
4.3GB	Seagate Barracuda LP	7.9ms	Ultra SCSI 3	1145	1215
4.5GB	Quantum Atlas II	7.9ms	Ultra SCSI 3	975	1045
8.7GB	Micropolis Tomahawk 3387	7.9ms	Ultra SCSI 3	1599	1669
9.1GB	Quantum Atlas II	7.9ms	Ultra SCSI 3	1699	1769
9.1GB	Micropolis Tomahawk 3391	7.9ms	Ultra SCSI 3	1875	1945
9.1GB	IBM 39100	7.9ms	Ultra SCSI 3	1899	1969
9.1GB	Seagate Barracuda	7.9ms	Ultra SCSI 3	1995	2059

FAST & WIDE ULTRA SCSI 3

FAST & WIDE ULTRA SCSI 3 allows for transfer rates of up to 40 Megs / Sec.*

SIZE	DRIVE	SEEK TIME	INTERFACE	INTERNAL	POWERSTOR
2.5GB	Seagate Barracuda Wide	8ms	Fast & Wide Ultra SCSI 3	790	895
4.5GB	Quantum Atlas II	7.9ms	Fast & Wide Ultra SCSI 3	1025	1125
4.5GB	Micropolis Tomahawk 4345	7.9ms	Fast & Wide Ultra SCSI 3	975	1045
4.3GB	IBM 34320	7.9ms	Fast & Wide Ultra SCSI 3	1055	1155
4.5GB	Seagate Barracuda LP	7.9ms	Fast & Wide Ultra SCSI 3	1195	1295
9.1GB	Quantum Atlas II	7.9ms	Fast & Wide Ultra SCSI 3	1749	1849
9.1GB	Micropolis 3391W	7.9ms	Fast & Wide Ultra SCSI 3	1875	1975
9.1GB	IBM 39100W	7.9ms	Fast & Wide Ultra SCSI 3	1999	2069
9.1GB	Seagate Barracuda 1917W	7.9ms	Fast & Wide Ultra SCSI 3	2075	2175
8.7GB	Micropolis Tomahawk 3387	7.9ms	Ultra SCSI 3	1599	1669

* When utilized with an appropriate SCSI Accelerator Card

The wider 68 pin bandwidth inherent in a Fast & Wide drive is utilized by a Fast & Wide SCSI accelerator card. Note: All ProDirect Fast & Wide hard drives come with a free 68-pin adapter that allows use of the Fast & Wide drive on your current Mac. Later, the adapter can be removed and replaced with a Fast & Wide accelerator card that will render the increased transfer rates.

Transfer Rates Qualifier All drives were tested utilizing a UMAX 150 MHz CPU with 32 Megabytes RAM. Adapter 2940 Ultra SCSI Accelerator and Macintosh software. Sustained transfer rates will vary depending on system type, memory, PCI cards and software. All drives were formatted and configured with FWW Toolkit and Speed-Tuned according to Manufacturer documented guidelines.

MAC MEMORY

SIZE	168 PIN 60NS	S.V.	3.3V*	SIZE	72 PIN	70NS	60NS
8MB	DIMM	41	57	4MB	SIMM	20	22
16MB	DIMM	75	102	8MB	SIMM	34	37
32MB	DIMM	159	233	16MB	SIMM	78	80
64MB	DIMM	305	399	32MB	SIMM	158	158

*FOR STARMAX AND GATEWAY 2000 CPUs

TECHWORKS
LIFE TIME
WARRANTY

Never a Surcharge!
No Sales Tax Outside MN
Same Day Shipping

International Orders: 612-884-0012

ProDirect Fax: 612-961-1109

Toll Free Tech Support 800-524-9952

Order Hours: M-F 8 AM - 7 PM SAT. 10 AM - 3 PM

800-524-9952



ProDirect PowerStor External
All ProDirect External Hard Drives are Enclosed in our Attractive, High Performance PowerStor Cabinet.
• ALL DRIVES PRE-TESTED • QUIET COOLING FAN • ACTIVE TERMINATOR • SYSTEM-COMPATIBLE, STACKABLE DESIGN • RELIABLE 110-220 AUTO SENSING 40 WATT UL TUV, CV, APPROVED POWER SUPPLY • SYSTEM OR DAISY CHAIN CABLE • PREFORMATTED WITH FWW HARD DRIVE TOOLKIT SOFTWARE.

All Hard Drives Include FWW Hard Drive Toolkit PE The Best Available!

Call for More Info on How You Can "Cash-In" Your Old Hard Drive.

Quantum

Incredible ProDirect 1GB, 2GB and 3GB Values

1GB Atlas \$289
2GB Fireball \$319
3GB Fireball \$379

Pinnacle Micro APEX 4.6GB OPTICAL DRIVE

\$1685
• 3.5 MB/Sec. Transfer Rate • 21ms Seek • 1700 RPM • 1024K Buffer • Blank Media \$225/Cartridge
IN STOCK NOW!

YAMAHA CD-R400

6X Reader \$999
4X Writer
650 MB CDR Media \$7.99 w/CDR Purchase

MICROPOLIS Blinding Speed! Ultra AV 8.7GB

Fast & Wide Ultra SCSI 3
\$1599 INTERNAL
\$1669 POWERSTOR

* Sust. Transfer Rate of 11.5 MB/Sec. with Adaptec 2940UWIM + 7.5ms Seek + 7200 RPM + \$12K Buffer + 5 Year Warr. (48 Hr. Replace.)

High Performance AV Value! Atlas II 4.5 & 4.5GB Wide

Quantum
\$975 Internal
\$1025 Wide

* 7.5ms Seek • \$12K Buffer • 5 Year Warr. • 7200 RPM • AV Configured for Maximum Performance

* MR head Technology Improves Speed & Reliability • Ultra SCSI 3 and Fast & Wide Ultra SCSI 3 Performance

"Test Drive" any Hard Drive We Sell for almost 3 months with Our Unbeatable 90 Day Performance Guarantee.

Simply put, We want you to have the exact drive you need for the job, period.

On The Web @ www.pdisales.com

ProDirect E-Mail: pdisales@aol.com

5 YEAR / 24 HOUR REPLACEMENT WARRANTY ON ALL POWER RAID COMPONENTS

FAST & WIDE ULTRA SCSI 3 POWER RAIDS

ALL POWER RAIDS COME PRETESTED AND CONFIGURED WITH SPECIALLY CONFIGURED ULTRA SCSI 3 WIDE AV DRIVES FOR YOUR SPECIFIC NEEDS. ALL YOU DO IS PLUG AND PLAY.

CAPACITY	DRIVES UTILIZED	SCSI ACCELERATOR	ONLY
4.0 Gig	2-Quantum Atlas 2GB	Adaptec 2940 Ultra SCSI 3	1695
8.0 Gig	2-Quantum Atlas 4GB	Adaptec 2940 Ultra SCSI 3	2795
17 Gig	2-Micropolis Tomahawk 8.7GB	Adaptec 2940 Ultra SCSI 3	4395
25 Gig	3-Micropolis Tomahawk 8.7GB	Adaptec 2940 Ultra SCSI 3	5965
33 Gig	4-Micropolis Tomahawk 8.7GB	Adaptec 2940 Ultra SCSI 3	7995

TRANSFER RATE EXCEEDS 20 MB/SECOND SUSTAINED WRITE
TRANSFER RATE EXCEEDS 34 MB/SECOND SUSTAINED WRITE
TRANSFER RATE EXCEEDS 39 MB/SECOND SUSTAINED WRITE

REMUS 1.4 RAID SOFTWARE INCLUDED WITH ALL RAIDS

SCSI ACCELERATORS

ATTO Express PCI Ultra SCSI	315
Single Channel, RISC based PCI to Fast/Wide SCSI 3 for PCI Macs.	
ATTO DualChannel Express PCI Ultra SCSI 3	589
Dual Chan. RISC based PCI to Fast/Wide SCSI 3 for PCI Macs. Transfer to 40 MB/Sec.	
FWB JackHammer	445
Fast/Wide 16BIT SCSI 2 Card for Nubus Macs.	
FWB PCI JackHammer	385
Single channel RISC based PCI to Fast/Wide SCSI 3 for PCI Macs.	
ADAPTEC PowerDomain 2940 UWM	285
Single channel RISC based PCI to Fast/Wide/ULTRA SCSI 3 for PCI Macs.	
ADAPTEC PowerDomain 3940 UWM	565
Dual channel RISC based PCI to Fast/Wide/ULTRA SCSI 3 for PCI Macs. Transfer up to 40 MB/Sec.	



TAPE DRIVES

GIGS	PRODUCT	MEDIA	TRANSFER/MIN.	INT.	EXT.
30	Quantum DLT2000XT	DLT	150MB	-	2575
40	Quantum DLT4000	DLT	180MB	-	4495
4	Conner TravanQIC	QIC 80 M	20 MB	-	485
4-8	Hewlett Packard C1533 DAT DDS-2	DAT 120M	60MB	-	999
4-8	Sony 7000 DAT DDS-2	DAT 120M	90MB	-	989
24-48	HP1553 Auto Tape Loader	DAT 120M	60MB	-	2995
5-7	Exabyte 8505XL	8mm	60 MB	2065	1485
14	Exabyte 8700	8mm	60 MB	1419	1479

POWER MAC SYSTEMS

Apple Power Macintosh

MODEL / MHZ	PROC.	CASE	RAM	HDRIVE	VRAM	CD	PRICE
9500/200	604e	Tower	32MB	2.0GB	2MB	8X	3895
9500/180	604e	Tower	16MB	2.0GB	2MB	8X	3185
8500/180	604e	Tower	32MB	2.0GB	2MB	8X	3285
8500/150	604	Tower	16MB	2.0GB	2MB	4X	2655
8500/132	604	Tower	16MB	1.0GB	2MB	4X	2189
7600/132	604	Desktop	16MB	1.0GB	2MB	8X	1975

SuperMac from UMAX

MODEL / MHZ	PROC.	CASE	RAM	HDRIVE	VRAM	CD	OTHER	PRICE
C500L/160	603e	Desktop	8MB	1.2GB	1MB	8X	1 PCI Slots	1299
C600L/180	603e	Tower	16MB	1.2GB	1MB	8X	3 PCI Slots	1675
C600L/200	603e	Tower	16MB	2.1GB	1MB	8X	3 PCI Slots	1975
C600L/240	603e	Tower	24MB	2.1GB	1MB	8X	3 PCI Slots	2275
700L/150	604	Desktop	16MB	2.1GB	2MB	8X	6 PCI Slots	2995
900L/180	604e	Tower	32MB	2.1GB	4MB	8X	6 PCI Slots	3570
900L/200	604e	Tower	32MB	2.1GB	4MB	8X	IMS CARD 6 PCI Slots	3750
900L/225	604e	Tower	32MB	2.1GB	4MB	8X	IMS CARD 6 PCI Slots	4195
900L/225	Dual604e	Tower	32MB	2.1GB	4MB	8X	7200RPM 6 PCI Slots	4690

PowerComputing

PowerTowerPro 225MHZ	604e	PRICE
Upgradeable CPU 16MB RAM		
2GB HD 8X CD 6 PCI Slots		
8MB VRAM IMS Card		
		\$4289



ALL PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE. RETURNED ORDERS ARE SUBJECT TO A RESTOCKING FEE. INTERNATIONAL CUSTOMERS PAY ALL SHIPPING CHARGES. ALL SHIPPING CHARGES ARE NON-REFUNDABLE. TO RETURN MERCHANDISE CALL FOR AN RMA NUMBER. ALL RMAs MUST BE RETURNED WITHIN 10 BUSINESS DAYS OF ISSUANCE. CUSTOMERS ARE RESPONSIBLE FOR SHIPPING CHARGES TO RETURN PRODUCT.

MacOS clones

3180	603e/180MHz 0/0/floppy	\$ 999
3200	603e/200MHz 0/0/floppy	\$1,099
4200	604e/200MHz 0/0/floppy	\$1,499

All systems ship in Mini-Tower enclosure with (4) 3.5" and (3) 5.25" Drive Bays, 3EDO DIMM slots, 5 PCI slots, SVGA Monitor Port, SCSI and E-IDE bus, ADB and PS2 port, 2 High-Speed Serial Ports, 16-bit sound in/out, and 1.44MB floppy drive, Built-in LocalTalk, and 110v to 230v Switchable Power Supply.

Special Package Prices:

Smart Bundle...\$1599

3180 603e-180 processor
16MB EDO DRAM
2.5 GB Hard Drive
2MB VRAM
256k L2 Cache

Performance Bundle...\$1999

3200 603e-200 processor
16MB EDO DRAM
2.5 GB Hard Drive
Matrox 3D 4MB video card
256K Cache

Pro Bundle...\$2449

4200 604e-200 processor
24MB EDO DRAM
2.5 GB Hard Drive
2MB VRAM
512K Cache

Elite Bundle...\$2998

4200 604e-200 processor
32MB EDO DRAM
2.5 GB Hard Drive
Matrox 3D 4MB video card
512K cache
Yamaha Speakers
33.6 Fax/Modem

All package systems include the following:

8x-CD Rom, Extended KB & Mouse and
Mini-Tower Case.

POWERtools™

tel: **800-891-4307**

512-891-0646

fax: **512-476-6399**

http: www.pwrtools.com

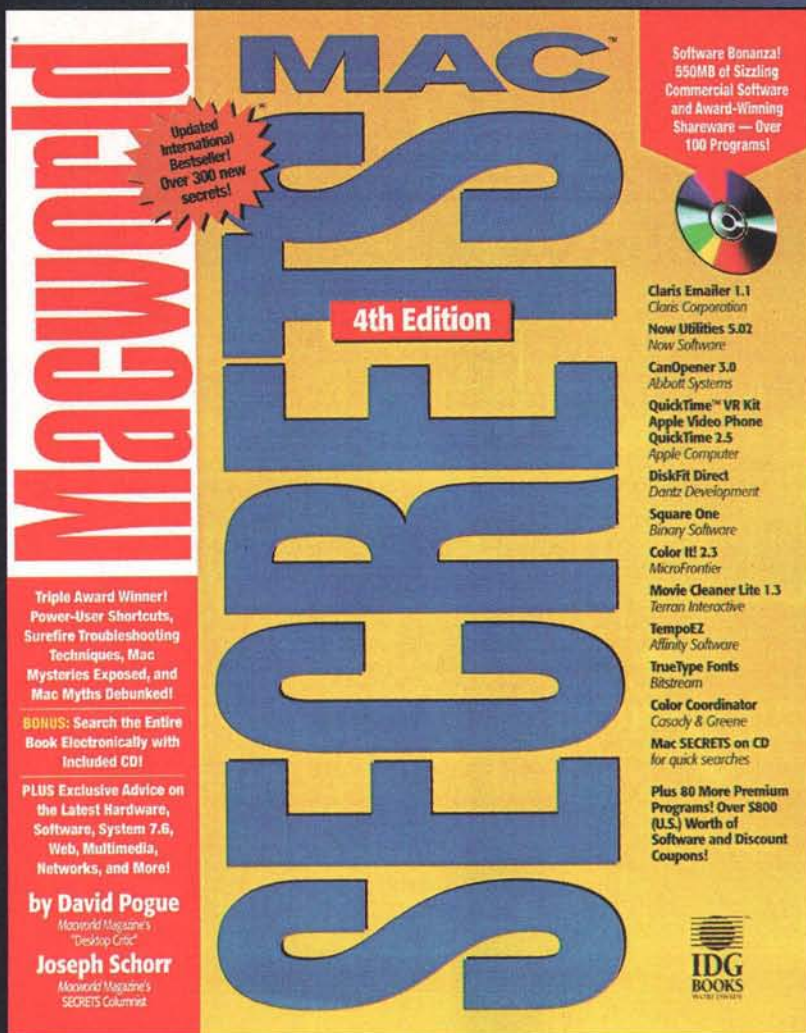
Email: sale@pwrtools.com



POWERtools

- Upgradable Motherboards
- Internal & External SCSI option
- Upgradable to CHRP platform
- Free System 7.6
- BeOS compatible





**"The best
Mac book
of the year."**

— Boston Computer
Society

Mac gurus and *Macworld* columnists David Pogue and Joseph Schorr have teamed up once again to bring you an updated edition of their international bestseller, **Macworld Mac SECRETS!** It's crammed with over 300 new secrets, plus new coverage of System 7.6 and the Tempo OS release, OpenDoc, America Online 3, Internet strategies, Mac clones and the latest Apple models — plus one of the best trouble-shooting guides ever written. This extravaganza of undocumented features, productivity pointers, and troubleshooting tactics is perfect for both Mac mavens and newcomers!

A bonus CD-ROM features an electronic, searchable version of the book. You also get 550MB of fully-functional commercial software and award-winning shareware, including Claris Emailer 1.1, Now Utilities 5.02, and CanOpener 3.0.

Macworld Mac SECRETS, Fourth Edition
by David Pogue and Joseph Schorr
0-7645-4006-8; 1100 pages; 1 CD-ROM

Be sure to visit IDG Books' new Web site at
<http://www.idgbooks.com>

Look for **Macworld Mac SECRETS, Fourth Edition** at your favorite bookstore or computer store. To order a single copy, call 800/762-2974. To order in bulk or volume, call 800/842-8996, ext. 3048 and ask for Eric Taylor.



IDG Books Worldwide
919 East Hillsdale Blvd., Suite 400
Foster City, CA 94404

Have a Nice Day.



Plan Ahead!

Register Online for Seybold San Francisco

(www.seyboldseminars.com)

Coming soon... Visit seyboldseminars.com for all the information you'll ever need as a publishing professional, including:

- *Rich show content*
- *Breaking news*
- *Product Reviews*
- *World-wide show information*
- *The Seybold Buying Guide, the most comprehensive product buying tool available to the publishing community today!*

Seybold San Francisco is the premiere publishing event for the digital electronic, graphic, printing, and internet/intranet publishing industries.

SEYBOLD
S E M I N A R S

The Web Site.

Where the Web Press Meets the World Wide Web

PRODUCT INDEX

Category	Page No.	Category	Page No.
Business Operations180-182		Peripheral Products186-189	
Bar Code		Cables	
CD Production		Cd Labeling	
Fax Back		Digital Media	
Inventory Management		Input Devices	
Print Utility		Magnetic Media	
Video/Display		Mobile Computing	
		Software Publishing	
		Security Systems	
Communications/Networking182-183		Services214-215	
Cross Platform		Data Recovery	
Internet		Digital Production	
		Repair	
Education/Entertainment183-186		Color Printing	
Discount Software		Systems & Peripherals ...189-207	
Games			
Music		Account Managers ..800.888.8622	
Religion		Carol Johnstone ..415.978.3152	
		carol_johnstone@macworld.com	
Graphics183		Shannon Smith ..415.974.7414	
Clip Art		shannon_smith@macworld.com	
Digital Art		Niki Stranz415.978.3105	
		niki_stranz@macworld.com	
Memory & Upgrades208-213		DTP Coordinator:	
Memory Upgrades		Clayton Haberman 415.978.3132	
		clayton_haberman@macworld.com	
Ad Trafficking Coordinator:			
Brian Mullin415.267.1735			
brian_mullin@macworld.com			

2 things our customers say about...

New! *LaserMerge Electronic Paper*
before they buy... **"I can't believe I get all this!"**
after they buy... **"I can't believe I got all this!"**

and all for only \$40

January-Mac Home  November-MacUser 

it not only replaces over \$1,000 worth of software, but it does all this:

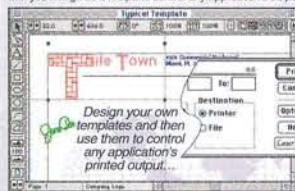
- Print 10x Faster
- Create new Paper Sizes & Layouts
- Preview Printing
- Create your own multi-ups
- Booklet/Pamphlets
- Cover Pages
- Business Cards
- Control Toner and Ink-Jet Level
- Create Bar Codes
- PS Level 2 Forms
- Even/Odd Prints
- Front-to-Back Prints
- 38 Print-Time
- Text Commands
- Import EPS/PICT
- Hi-Res Paper
- Print Logging
- Serialization
- Letterheads
- Forms
- Make Labels
- Invoices
- Badges
- Certificates
- Watermarks
- Print Stamps
- Name Plates
- Envelopes
- Greeting Cards
- Over 230 ClickBook & Avery Templates
- Reduce Network Traffic
- Sign your Letters & Faxes Electronically
- Store Images on the Printer's Disk or in its Memory
- Each layer can be moved, rotated, colorized, clipped, duplicated, & scaled to your design...

For 101 ways to boost the printing power of any application, call (800) 648-6840 or try our demo at www.mindgate.com

Competitive Upgrade from ANY Print Utility for only **\$40**

30-day money-back guarantee

LaserMerge is a print extension that sits between any application and any printer driver... It uses **Electronic Paper Templates** that you design as a recipe to control any application's output...



System 7 required! Works with ANY printer and ANY application. LaserMerge's miracles require only 32K of memory. QuickDraw GX is NOT required!

List Price: Base unit \$95
Net: \$15-\$25/unit
Worldwide: (615) 937-6800
Fax: (615) 937-6836
Fax Orders: (615) 937-6801



MindGate Technologies, Inc.
164 Oliver Smith Road
Fayetteville, TN 37335-5335

Order from us Direct
VISA
MasterCard
Discover
or thru
800-248-0800
800-255-6227

CIRCLE 517 ON READER SERVICE CARD

**EXPERT ADVICE IS NOT CHEAP
IT'S FREE!**



If you make presentations, call us. We specialize in projection products and we'll take the time to assist you in finding the one that's right for you. No hype. Just knowledgeable, friendly service.

- Trustworthy technical guidance and support
- Quick delivery
- Money-back guarantee
- Tremendous selection of all leading projectors
- Sales, leases or rentals
- Discount prices



We carry all the top brands!



Telex P-400
• 800x600, 400 lumen
• poly-Si LCD, power zoom
• Data/video/audio: \$6,895



Panasonic L-291
• 640x480, 300 lumen
• poly-Si LCD, zoom
• Data/video/audio: \$4,495



CTX 550
• 800x600, 270 lumen
• 9 lbs! data/video/audio
• Sub-compact size, \$5,495



Proxima 5600
• 800x600, 500 lumens, 16lbs
• poly-Si LCD, power zoom
• Data/video/audio: \$6,895



Epson 3300 & 5000
• 640x480/800x600, 350-450 lumen
• poly-Si LCD, 16 lbs/14 lbs
• \$4,995/\$7,995

Mon.-Fri.
6:30am-5:30pm PST
24-hr. Fax: 415-986-3817
E-Mail:
sales@panellight.com
Panellight Display
Systems, Inc.,
P.O. Box 190940,
San Francisco, CA 94119
415-772-5800



<http://www.panellight.com>

Epson	Toshiba	CTX	Polaroid	Panasonic
In Focus	NEC	nView	Proxima	Telex

Call for Free Catalog (800) 726-3599

35 Million Internet Users...

...but there's **460 million** fax machines worldwide. Get your promotional and sales information out 24 hours a day with a PhoneMaker Fax-On-Demand system by MicroMat. It will save you time, money and your customers will love it. Try the system and get the facts on Fax-On-Demand by calling **800-829-6227**. Request document #1007

Call **707-838-4231** and try it for yourself!



MICROMAT
COMPUTER SYSTEMS

PhoneMaker

CIRCLE 476 ON READER SERVICE CARD

DESIGN, PRINT and APPLY CD Labels for \$79⁹⁵

*That's
NEATO!*



PATENTED
WORLDWIDE

Kit includes:
• The NEATO CD Label Applicator
• 100 Labels - Absorbed Coating
• DesignExpress Labeler™
Software for Windows
• NEATO Label Design Templates
for MAC and PC

NEATO[®] CD LABELER KIT

- 1 Create your own artwork On Your Computer with NEATO Templates.
- 2 Print on Any Laser or InkJet using NEATO pressure-sensitive labels.
- 3 Using the NEATO Labeler, apply labels... **PERFECTLY EVERY TIME!**

U.S.: 250 Dodge Ave., East Haven, CT 06512
800-984-9800 203-466-5170 Fax 203-466-5178

Europe: Ealing House, 33 Hanger Lane, London W5 3HJ, UK +44 (0)990 561571
Fax +44 (0)181 932 0480

See us at:
<http://www.neato.com>



CIRCLE 475 ON READER SERVICE CARD

*Creating
precision
bar codes
is as easy as
using a font!*

PRINTBAR™ BAR CODE FONTS

- Compatible with virtually any Macintosh application.
- Choose from: UPC/EAN/ISBN • Code 39 • Code 128 **NEW!** • Interleaved 2 of 5 • POSTNET/FIM.
- 90-day money back guarantee.

"This is the best product of its kind, and it's reasonably priced too."

—MacUser review **★★★★**

**EXTRA BONUS
FREE POSTNET & FIM**
with any PrintBar Font Purchase

4140 Mother Lode Dr., Ste. 100, Shingle Springs, CA 95682
PH: 916 672-0244 • FAX 916 672-1103
E-Mail us at: info@bearrock.com

**Bear Rock
TECHNOLOGIES**
Bar Code Products
That Mean Business

Money Back Guarantee
On All Products

800 232-7625

Visit our Web Site at: www.bearrock.com

*Scanning bar codes
is even easier!*



BAR CODE READERS AS LOW AS \$199!

- We offer readers compatible with Macintosh, PC, PS/2, laptops, and serial terminals.
- Instant or remote data entry from bar codes! Scan information into any software application with a wand, CCD, laser gun, badge slot or magstripe reader.
- Don't waste your money on the wrong kind of bar code reader for your situation.
- Our experienced customer service reps can help you choose the correct reader for your needs at the best price!

Now, it's time to use the POS leader!

POS•IM, the leading-edge POS system, is designed to increase sales and profit margins, while reduce shrinkage and labor costs—all at an affordable price for the MAC user.

Easy-to-use, easy-to-learn features:

- Inventory Management
- Credit Card Processing
- Simple Keyboard/Display
- Purchase Orders
- Useful Reports
- Bar Coding

Over 3,000 installations world wide!



POS•IM
Point of Sale • Inventory Management

Call for a **FREE** catalog!
(800) 409-7678

Ensign
Developed by: **SYSTEMS INC.**

BAR CODE PRO™

Create EPS graphics for your desktop publishing documents. Call for a free demo disk and get the information you need to make an intelligent purchasing decision for Mac or Windows.

**800.619.0399
718.499.6293
or fax
718.768.3997
<http://www.snx.com>**



CIRCLE 450 ON READER SERVICE CARD

Newton® Joins the Mac-Barcode® Family!



One Stop Shopping with
Friendly Support
from the Experts

Newton® Walk-About™
Mac-Barcode ProLabel Software
SmartLaser/SmartScanner/SmartPen
Thermal Transfer Printer
Call for Literature & Free Demo Disk

The Mac-Barcode Co.
800-733-7592
<http://www.mac-barcode.com>

CIRCLE 562 ON READER SERVICE CARD

POINT OF SALE INVENTORY CONTROL

- Retail
- Rentals
- Service
- Manufacturing
- Multi Location



Bar Code/Magnetic Stripe Readers
Receipt Printers • Cash Drawers
Credit Card Auth. & Deposit Software
Download Demos and Interactive Catalog
at our Web Site: <http://www.posdirect.com>
call, fax, or e-mail for a **FREE CATALOG**
(800) 622-7670 sales@posdirect.com
(618) 985-8237 TEL • (618) 985-3014 FAX
Dealer Inquiries Welcome
30 day MBG



Bar Coding



- Portable & Non-Portable Readers
- Radio Frequency Readers
- PostScript Bar Code Fonts

800-345-4220

WORTHINGTON
DATA SOLUTIONS

There's a New Way to Shop on the Net! Use the
Web Shopper at: **Macworld**
ONLINE

www.macworld.com/buyers/guide

**Buyer's
Guide**



Contact Macworld on
how to advertise.
(800) 888-8622

Software Blowout!!!
Tel: 1-800-809-0880

Microsoft

MS Office 4.21 (Word, Excel, Powerpoint)	\$225
MS Word 5.0/6.01	\$99
MS Excel 5.0/Powerpoint 4.0	\$125
MS Project 4.0	\$250
MS Office Win 95/Win 97	\$295

Corel

Corel Draw 6.0 (CD)	\$225
Corel Office/Ventura (CD)	\$\$\$CALL\$\$\$
Word Perfect 3.5(CD)	\$175
Quattro Pro (CD)	\$\$\$CALL\$\$\$
Presentations(CD)	\$\$\$CALL\$\$\$
Corel Graphics Pack (CD)	\$\$\$CALL\$\$\$
Ventura (CD)	\$\$\$CALL\$\$\$

Adobe

Photoshop 4	\$325
Pagemaker 6.5	\$299
Illustrator 6	\$225
Premier 4.2	\$299
After Effects 3	\$325
Framemaker 5	\$325
Acrobat Pro 3.0	\$90
Streamline/Persuasion	\$\$\$CALL\$\$\$
After Effects Studio Bundle	\$\$\$CALL\$\$\$
Pagemill	\$\$\$CALL\$\$\$

Macromedia

Director 5 (w/ Shockwave)	\$525
Studio 2	\$835
Freehand 7.0 (w/ Vector Effects)	\$215
Fontographer 4.1	\$200
XRes 2	\$150
Extreme 3D	\$250
Freehand Graphic Studio	\$\$\$CALL\$\$\$
SoundEdit 16 Deck II	\$\$\$CALL\$\$\$

Clarix Works	\$49
Clarix Filemaker Pro 2.1/3.0	\$75/150
Fractal Designs Painter 4.0	\$220
Ray Dream Studio	\$\$\$CALL\$\$\$
Ray Dream Designer	\$\$\$CALL\$\$\$
Express Yourself	\$\$\$CALL\$\$\$
Fractal Design Detailer	\$\$\$CALL\$\$\$
OmniPage Pro 6.0	\$\$\$CALL\$\$\$
OmniForm 2.0	\$\$\$CALL\$\$\$
Canvas 5	\$\$\$CALL\$\$\$
Truevision Targa 2000	\$\$\$CALL\$\$\$
Truevision Targa 2000 Pro	\$\$\$CALL\$\$\$
Strata Studio Pro 2.0	\$\$\$CALL\$\$\$
Strata Media Paint/Vision 3D	\$\$\$CALL\$\$\$
Strata Virtual Studio	\$\$\$CALL\$\$\$
Wacom Tablet	\$\$\$CALL\$\$\$

Powerbook Blowout

1400 c 16/1GB/CD	\$\$\$CALL\$\$\$
1400 cs 16/1GB/CD	\$\$\$CALL\$\$\$
1400 cs 16/1GB	\$\$\$CALL\$\$\$



Tel: 1-(800) 809-0880
1-(805) 809-0880
Fax: 1-(818) 346-1890

Bus. Hours: M-F 9:00-6:00 PM PST

Visa, MC, Discover, Am Ex
Prices valid while supplies last.
Prices are subject to change without notice.
Call for items not listed.

CIRCLE 448 ON READER SERVICE CARD

FlexWare Accounting™
FLEXIBLE • POWERFUL • FAST

MacOS based, High-End, Multi-User, true client/server accounting software. Twelve fast, integrated modules. Customizable reports and financials. Extensive feature set. Powerful tools to grow your business. Call for free multimedia demo CD-ROM.

MacUser BEST BUY
MW EDITOR'S CHOICE
score card MacWEEK

Tel: 888-FLEXWARE
Fax: 916-624-0757
Email: info@flexwareint.com
Web: www.flexwareint.com

EES Companies, Inc. 800-508-4444
Tel: (508) 653-6911
Fax: (508) 650-1872
info@posoe.com

Mail Order

Distribution
www.posoe.com

Point-of-Sale
INTERNET COMMERCE READY

- Order Entry
- Invoicing
- Fast Cash Retail
- Purchase Order
- Credit Card Processing
- Inventory Control
- Barcoding
- Multi-User
- Complete Systems Available
- Demo Available

CIRCLE 492 ON READER SERVICE CARD

**MAC & NEWTON
BAR CODE SPECIALISTS**
800-988-1914

- Mobile Wand & MobileScan for Newton
- Easy Plug and Play Cross Platform - Mac & PC's
- Wireless and Portable Solutions
- CCD / Laser / Wand Readers
- Fonts & Software / Bar Code Labels & Printer
- Sun & Dec Bar Code Solutions
- Corporate and School P.O.'s Welcome

Int'l: 415-325-0379 Fax: 415-325-1779

InPath
DEVICES

IDT PROUDLY UNVEILS ITS NEW
enhanced INTERNET SERVICE

InternetPlus™

24/7 TECH SUPPORT
FREE NET2PHONE™ SOFTWARE
FREE INDIVIDUAL™ NEWSFEED
FREE 2AM™ GAMES

for only **\$19.95**

IDT's InternetPlus is for people who are ready to use the Net for all it's worth without having to stop, slow down and get frisked by some online service. If you're ready for InternetPlus call us any time of the day or night.

(800) 438-8995

ENJOY A FREE MONTH OF UNLIMITED LONG DISTANCE AND INTERNATIONAL PHONE CALLS!
Get combined InternetPlus and IDT's deep-discount long distance phone service. You'll save a bundle compared to AT&T, MCI or Sprint. PLUS you'll get a rebate check for a full month of calls. (There's no limit). For complete details speak to an IDT customer service associate.

6016 ©1996 IDT CORP. IDT IS A TRADEMARK OF IDT CORP. ALL OTHER TRADEMARKS ARE THE PROPERTY OF THEIR RESPECTIVE OWNERS.

CIRCLE 449 ON READER SERVICE CARD

**Finally! Windows 95
and Macs Share Files
and Printers Both Ways**

Workgroups and small offices can now operate as efficiently as an enterprise with **PC MACLAN for Windows 95**. Low cost, plug and play installation, Network Neighborhood and long file name support, are just a few of the features that make sharing files, volumes and printers between Macs and PCs a snap.

"For peer-to-peer networking...
PC MACLAN 6.0 is the only choice."
—Macworld - Nov. '96

Create your own network or complement almost any pre-existing LAN. Sharing information between Windows 95 and Macintosh users is as easy as working off your local hard drive. Print jobs go to the printer of your choice regardless of its location on the network.

For ordering or information:
800-862-2526
e-mail: sales@miramarsys.com
Web: www.miramarsys.com

Visit us at: Sunbelt Computer & Games Show — Booth #229
Seybold New York — Booth #132

PC MACLAN
FOR WINDOWS 95

Network any Windows 95 PC and Macintosh
Fully Windows 95 Compliant
Redesign Your Environment with PC MACLAN for Windows 95

NOVEMBER 1996
MACWORLD
★★★★★ 75

Miramar Systems, Inc.

CIRCLE 431 ON READER SERVICE CARD

Connect Windows to Macs...easily

Both **COPSTalk** & **MacLan**...

- ❶ Provide full Windows 95 support
- ❶ Print to ANY AppleTalk printer
- But Only COPSTalk...**
- ❶ Automatically maps extensions
- ❶ Supports all Mac characters
- ❶ Has networking & printing utils
- ❶ Is easiest to install
- ❶ Ships NDIS LocalTalk drivers
- ❶ Has advanced properties pages

More about **COPSTalk** —

- ❶ Chosen by Apple, Claris & Farallon for Windows to Mac
- ❶ Recommended by 90% of printer manufacturers
- ❶ Free demo and utilities
- ❶ 1 year free support
- ❶ Lowest cost
- ❶ Competitive upgrades

Get a free **COPSTalk 2.1** evaluation at <http://www.copstalk.com> or we'll mail it to you; call **COPS** @ 770-840-0810 today.



From **COPS, Inc.** first in Windows to AppleTalk since 1985

CIRCLE 445 ON READER SERVICE CARD

Detailed Networks in Minutes with **NetDraw® 2.0!**

With over 330 professionally drawn images, **NetDraw® 2.0** gives users immediate access to clip art symbols for LANs, WANs, computing, PCs, telephony and patching and cabling. Also included are flow charting symbols as well as mapping graphics to depict your networks geographically. Available now for just \$129.95, **NetDraw® 2.0's** complete clip art library is easily imported into most Macintosh applications. **Call 800-643-4668 to order your copy today!**

NetDraw Clip Art for Building Networks®

CIRCLE 461 ON READER SERVICE CARD

CORPart

CD-Rom

CORPORATE Logo Clip Art Library 1&2

each **only \$74.95**
FREE 2nd Day Shipping

OVER 1150 Logos & Trademarks Per Library

- Logos From All Business Categories
- Hi-Res. Illustrations & EPS Format
- Ideal for Laser Printers & Sign Cutters
- Great For Signs, Ads., Flyers
- Presentations, Video, Internet
- Fully Editable & Resizable
- High Resolution At Any Size
- Most Up-to-date Library Anywhere
- Works with any application capable of EPS import, Mac & WIN

1-800-670-2245
+1-818-716-9030 FAX: +1-818-716-9230
<http://home.earthlink.net/~gsolutionz/>

22545 Hatteras Street, Woodland Hills, CA 91387

CIRCLE 415 ON READER SERVICE CARD

MAP Art

Terrain USA International World Globes

Call for our Free Color Catalog.
800-334-4291
609-387-1611 www.MAP-ART.com
609-387-5724 Fax. **CARTESIA**

Practica Musica 3

Your Personal Music Tutor!

"The best music education program for the Mac" (Mac User) is now available in Solo, Family, and Site editions. (retail \$99, \$140, and \$450). The most complete music training package for both beginners and advanced students.

A LITTLE Kidmusic

NEW! Fun music learning and entertainment for kids. Tap keys to play with automatic accompaniment, play rounds, learn pitch and rhythm notation, write or record tunes. Expandable library of traditional songs. \$75

ARS NOVA • (206) 889-0927 • (800) 445-4866
FAX (206) 889-0359 • www.ars-nova.com

CIRCLE 484 ON READER SERVICE CARD

"A Macworld never goes by without me checking to compare prices. I always look to see if what I need is there."
—Owner, Computer Consultants

Macworld SHOPPER

NEW AMERICAN STANDARD

The most literally accurate Bible...
...in the English language

BIBLE MASTER™

Lockman Software
For Windows™ & MAC®

NEW Ask about our new BibleMaster Bundle for only \$49.95 on CD-ROM.

Don't have a CD-ROM drive?
Ask about our two Bundles available on disk.

American Bible Sales
870 S. ANAHEIM BLVD. ANAHEIM, CA 92805
1-800-535-5131

The Standard of Biblical Excellence... **NASB**

CIRCLE 537 ON READER SERVICE CARD

MUSIC for the MAC

We sell the full range of music products for the Mac. Hard Disk Recording Specialists.

Best prices & customer support in the business!

Mac BEAT! www.macbeat.com
FREE CATALOG
505-473-3634
Fax 505-473-4647
1-800-MAC-BEAT

1314 Rufina Cr. Ste. #44
Santa Fe, NM 87505

Ask about
Free Software*
when you order

OVER
10,000
TITLES
IN STOCK
DAILY!

United CD ROM®

FREE SOFTWARE
WITH EVERY PURCHASE!*

SAME DAY
SHIPPING! **

Visit Our **HOT** Website at
WWW.UNITEDCDROM.COM

CALL US NOW
FOR A FREE CATALOG!

1-800-864-8334

National Partner
of
CYBERFEST '97



University of Illinois
Urbana-Champaign
March 10-15, 1997



Revolutions in Art & Music: Hear music while seeing artistic masterpieces & understand the correlation between the arts & events that have shaped our civilization.
GREAT COMPOSERS: Hear the inspiring music & life stories of 9 of the world's most beloved composers. View over 1,130 images & hear 143 minutes of self-playing presentations & musical excerpts.
N.C. WYETH ILLUSTRATED CLASSICS: By studying the writing techniques & styles used in three favorite adventures, children explore their own creative talents & examine the process of writing.

Reference!
Revolutions 54549
Composers 54553
N.C. Wyeth 54551
Zane Publishing
YOUR CHOICE \$24



EXERCISE BREAK: A pop-up utility initiates spontaneous at-your-computer workouts to prevent health problems associated with computer use.
THE HERBALIST: David Hoffman's comprehensive text on herbal medicine includes info on basic principles of herbalism, human systems, & medical details on 100 herbs.
TRADITIONAL CHINESE MEDICINE: Comprehensive text on Chinese traditional medicine. Comparisons of modern Western medicine and science to traditional Chinese medicine.

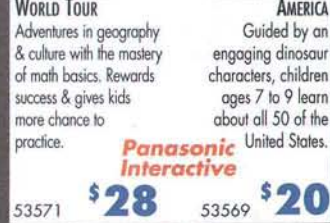
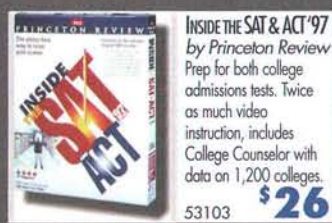
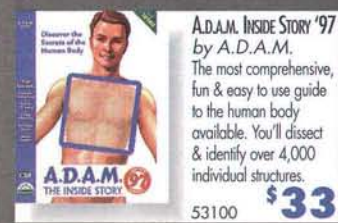
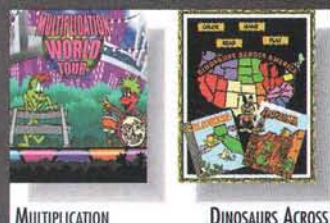
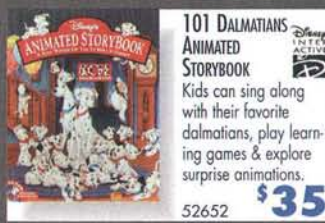
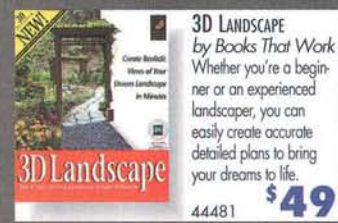
Health!
Exercise \$22 54007
Herbalist \$27 54018
Medicine \$27 54649
Hopkins Technology



PRIME TARGET
Action-packed 3D shoot-em-up game intertwined with a murder mystery set in the historic buildings of Washington D.C. in the year 2004 A.D.
55623 **\$26**



DAMAGE INCORPORATED
Take command of the world's top special forces unit in this extraordinary 3D first-person shooting extravaganza. Lead four highly-trained marines on six missions through 30+ levels.
55624 **\$27**



* While supplies last. Shipping charges apply to free offers.
** Orders received as late as 9:30 pm (CST) for 2nd day air. Call for other deadline times.
Special offers, item availability and prices may vary according to format and are subject to change without notice. All prices in U.S. dollars. Not responsible for inadvertent errors.

ALL MAJOR CREDIT CARDS
VISA M/C DISCOVER
CODE M04 ACCEPTED

Business Hours: Mon-Fri 8am-10pm; Sat 8am-5pm; Sun 12pm-5pm.
Mail Orders to: 800 United CD ROM Drive, Urbana, IL 61802

CONTACT US!
CompuServe: 76043,1605
America On-Line: UNITEDCD
Int'l orders 1-217-337-8532

http://www.unitedcdrom.com
Fax back 1-217-352-8123
Fax orders 1-217-337-8531

CH FLIGHTSTICK PRO
Includes a programmable eight-way switch & four fire buttons to control weapons, radar & viewing for more advanced games.
38253

CH PEDALS
Features pivot movement for use with auto racing, flying, & more. Car mode & plane mode. Designed for both novice & advanced players.
55893

YOUR CHOICE \$68

Student - Teacher & School Discounts!

We will beat any advertised Price

*

Latest Version & Full Packages



\$69

Black Box 2.0b
Photoshop filters



\$69

WordPerfect 3.5.1
World's Best
Word Processing



\$169

FreeHand
Illustration & Design



\$319

MiniCad 6.0
2D/3D Cad Software



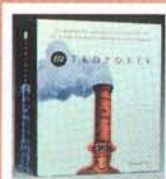
\$119

KPT Bryce 2.0
3D Creation & Beyond



\$129

FileMaker Pro 3.0
#1 Relational Database



\$649

mTropolis 1.1.1
Multimedia Development



\$209

Fractal Painter 4
World's Leading
Paint Program



\$129

CodeWarrior
C/C++ Programming



\$799

LightWave 3D 5.0
Modeling & Animation

Acuris 18 Perfect People	\$249	Kai's Power Goo 1.0	\$49
Alias Sketch! 2.0.2	\$229	Kai's Power Tools 3.0.2	\$85
Amapi 2.1	\$199	KaleidaGraph 3.0	\$89
Astound 2.0	\$99	LightningDraw Gx 1.0.3	\$99
Authorware 3.5.1	\$649	Live Picture 2.5.1	\$349
AutoCad R12 w/Ame	\$199	M.Y.O.B. 7.0	\$49
Boris Effects 2.1	\$125	Mac Academy Tutorial Videos	\$35
Bravado 1000 Pci w/Premiere	\$699	MacDraft 4.2.1	\$199
Canvas 5.0	\$179	MacLink+ Translator Pro 9.0	\$95
ChemOffice Pro 3.5 Student	\$299	Mathcad 6.0+	\$149
Claris HomePage 2.0	\$69	Mathematica 3.0 Student	\$169
ClarisWorks 4.0.5	\$89	Matlab Student	\$99
Cliff Notes Studyware Geometry	\$35	MeshPaint 3D 1.5	\$315
Coda Finale 3.7	\$249	Nisus Writer 5.0	\$99
Color III 3.2	\$39	Now Bundle 3.6	\$69
ColorDrive 1.5.3	\$89	Now Utilities 6.5	\$55
Conflict Catcher 3.1.0	\$59	OmniPage Pro 6.0	\$349
CorelDRAW Suite 6	\$169	Opcode Vision 3.0.3	CALL
Datadesk 5.0	\$369	PhotoTools 1.0	\$85
Debabelizer Toolbox 1.6.5	\$219	Phototone Alphabets	\$129
DeltaGraph Pro 4.0	\$89	Presenter Professional 3.1.5	\$495
DesignCad 2D/3D 3.0.1	\$149	Printshop Deluxe 1.1	\$55
Director 5.0.1	\$299	Quickeys 3.5	\$85
Director Multimedia Studio 2.0	\$899	Ram Doubler 2.0	\$55
DrawingSlate II 4x5	\$99	Ray Dream Studio 4.1	\$199
Elastic Reality 1.2	\$149	SPSS 6.1 Student	\$99
ElectricImage Student 2.5	\$249	Sculpt 3D 4.1	\$219
Encore 4.1.1	\$249	SigmaPlot 5.0	\$199
EndNote Plus 2.1	\$165	SoftWindows 95	\$269
FastTrack Schedule 4.0b	\$129	Sony Multiscan 15sfl	\$479
FileGuard 3.0	\$119	SoundEdit 16+ Deck II	\$249
Final Draft 4.0	\$125	Speed Doubler 2.0	\$55
Fontographer 4.1.3	\$149	Spell Catcher 1.5	\$49
Form Z 2.8.2	CALL	Studio Vision Pro 3.0.3	CALL
Fractal Detailer 1.0	\$199	StudioPro 2.0	\$549
Fractal Expression 1.0	\$199	Stuffit Deluxe 4.0	\$69
Fractal Poser 2.0	\$95	Stylist 1.0	\$85
FreeHand Graphic Studio 7.0	\$389	SuperCard 3.0	\$129
FutureSplash Animator	\$169	SupraSonic 336V+ External	\$245
German Power Trans 1.0	\$99	System 7.5.3 Software	\$85
Hard Disk Toolkit 2.01	\$109	TelePort Platinum 33.6	\$169
HexWrench 1.0	\$249	Texturescape 2.0	\$69
HyperCard 2.3.5	\$89	Umax SuperMac S900L/180	\$3349
HyperStudio 3.0	\$119	Umax Vista-S6E Scanner	\$589
Infini-D 3.5	\$249	Us Robotics Courier V.Eve	\$279
Inspiration 4.1c	\$89	Virex 5.6.5	\$49
Japanese Language Kit 1.2	\$129	Wacom Art Z II 12x12	\$399
Java Starter Kit	\$69	Wacom Art Z II 6x8	\$285
Jmp 3.1.5	\$329	Wacom ArtPad II 4x5w/Dabbler	\$149
KPT Final Effects 3.0	\$349	Walkthrough Pro 2.6	\$229
KPT Power Photos Vol 1,2,3, or 4	\$85	XRES 3.0	\$199

Visit our Web Site!!

<http://iaswww.com/source.html>

Call for FREE Catalog!
(800) 831-3115

Includes Complete Price List & Free Product Info.

****SAME DAY SHIPPING ON MOST ITEMS.**
****ADOBE, SYMANTEC & MICROSOFT PRODUCTS**
AVAILABLE TO QUALIFIED STUDENTS,
TEACHERS & SCHOOLS.
****SCHOOL PURCHASE ORDERS WELCOME.**
****NO SURCHARGE ON CREDIT CARDS.**
****IBM & MAC PRODUCTS AVAILABLE.**



The
SOFTWARE
Source

1-800-831-3115

1750 Brielle Ave, Unit A-2
Ocean, NJ 07712
PHONE (908) 695-2100
FAX (908) 695-9371
E-MAIL: SFTSWS@AOL.COM

SOFTWARE SUPERSALE

ADOBE
ACROBAT v3.0\$179
AFTER EFFECTS v3.0\$569
ILLUSTRATOR v6.0\$319
PERSUASION v3.0\$233
PREMIERE v4.2\$419

PageMaker v6.5
\$499
Photoshop v4.0
\$499



CLARIS
FILEMAKER PRO v3.0\$159

COREL
CORELDRAW v6.0\$359

FRACTAL DESIGN
RAY DREAM STUDIO v4.1\$259

MACROMEDIA
AUTHORWARE INTERACTIVE STUDIO V3.5\$1809
DECK II V2.5 DIGI AUDIO WRKSTAT\$259
DIR. MMEDIASTUDIO V2.0 W/ DIR 5.0\$819
DIRECTOR V5.0 W/ SHOCKWAVE\$755
EXTREME 3D\$419
FONTOGRAPHY v4.1\$285
FREEHAND 7\$345
FREEHAND GRAPHIC STUDIO v7.0\$369
SOUNDEDIT 16 v2.0\$239
SOUNDEDIT 16 v2.0 PLUS DECK II\$325
XRES v3.0\$359

Director v5.0
w/ Shockwave \$729
Freehand v7.0
w/ Vector Effects \$339



PAGE
COMPUTER

(888) 444-4845
4665 MELROSE AVE, L.A., CA 90029
(213) 665-7777 FAX: (213) 660-0444



LOWEST PRICES

Office v4.21 \$335
Excel v5.0 \$185
Word v6.01 \$189



MICROSOFT
FOXPRO v2.6 PRO\$389
POWERPOINT v4.0\$279
PROJECT v4.0\$399
VISUAL FOXPRO v3.0 PRO ED\$429

STRATA
STUDIO PRO v1.5 / v1.75\$819/739
VISION 3D v4.0\$219

HARDWARE

HEWLETT PACKARD
DESKWRITER 600 MONO 600X300DPI\$205
DESKWRITER 680 C 600X600DPI\$275
LASERJET 4MV 16PPM 600X600DPI\$2629
LASERJET 5SIMX 24PPM 12MB\$3709
CLR LASERJET 5M10PPM 300DPI 36MB\$6815
LASERJET 5M 12PPM 600X600 DPI 6MB\$1855
LASERJET 6MP 600DPI 8PPM\$855
SCANNER 4C 600DPI OPTICAL\$795
SCANNER 4P300DPI 24BIT COLOR\$479
SCANNER 4S\$179
AUTO DOC. FEEDER 3C, 4C, 4P\$415
TRANSPARENCY ADAPTER FOR 3C, 4C\$569



FREE

CD-ROM Catalog!

Over 2,000 titles in stock.
There's something for everyone!

- Games & Adventures
- Education & Reference
- Entertainment & General Interest
- Kid's Edutainment
- Desktop Publishing
- Multimedia Tools



call now

1-800-843-9497

visit our web site at www.educorp.com



EDUCORP Direct

7434 Trade St., San Diego, CA 92121
(619) 536-9999 • Fax (619) 536-2345

W53

CIRCLE 429 ON READER SERVICE CARD

CIRCLE 418 ON READER SERVICE CARD

SyQuest

EZ-135 cart.....19.95

Jaz

1GB cartridge.....95.00

Zip

100MB cart.....13.95

4mm

Sony 112m.....19.95

TDK 90m6.00

8mm

Maxell 112m.....6.50

Maxell 160m.....13.95

osaka

Optical disks

MO230 fmt.....10.50

MO128 fmt.....9.25

MO1.248.00

CD-R74 & accessories

CD-R'sCall

Marking pen.....3.99

Labels, 20/pk5.50

CD wipes5.50



PHASEWRITER DUAL™

Better than CD-R!

Two Drives in One!

Both Rewritable PD & CD-ROM

Toray's Phasewriter Dual — the 650MB rewritable optical drive and 4X CD-ROM player in a single device! The rewritable feature makes it an ideal solution for running applications, file archiving, multimedia authoring/editing, and as a backup system. Plus, this PD-CD-ROM drive supports all your favorite CD's: Audio, Photo CD, Multimedia games, and CD-i movies. Switch between PD and CD media without rebooting. SCSI interface.

Bonus Offer!

PD Drive & 2 PD Cartridges!

\$299

e-mail diskconn@telepath.com <http://www.disketteconnection.com>

Diskette CONNECTION

ph 405-789-0888, fax 405-495-4598

1.800.654.4058

CIRCLE 485 ON READER SERVICE CARD

YOUR CD-R SOURCE!

OUR \$6.65 CD-R SALE IS ON NOW!

\$6.65

74M • 4X & 6X
SONY • TDK • VERBATIM
CUSTOM PRINTING AVAILABLE

CALL US FOR THE BEST PRICES ON
2X AND 4X DRIVE PACKAGES!



INCLUDES 100
LABELS &
TEMPLATE
SOFTWARE!

PRESS-IT
CD-LABELER
\$65.95

iomega.

ZIP CARTRIDGE

\$12.95

JAZ CARTRIDGE

\$89.95



JAZ DRIVES

\$439.95

VISIT OUR WEB SITE FOR WEEKLY UPDATED MACWORLD SPECIALS!



MEDIA SUPPLY

610-458-9100 • Fax: 610-458-9464

800-944-4CDR

www.mediasupply.com

CIRCLE 413 ON READER SERVICE CARD



MacWorks

"Low Prices, Great Service... That's The Deal!"

web: <http://www.macworks.com/>
e-mail: sales@macworks.com
voice: 913-599-6227
fax: 913-599-6111

Attention PowerMac

7500 Owners!

- PowerPC 604
- 120 Mhz
- Apple Upgrade Card
- 30-40% Faster
- * Add 512K Cache for \$129



\$99

CALL NOW:
800-482-2705

All Prices Represent 2% Cash Discount • We only ship FedEx • *Denotes Refurbished
CIRCLE 425 ON READER SERVICE CARD

The Easiest Way To Label Your CD-R Media



COMPLETE CD LABELING SYSTEM INCLUDES:


- **1 Interactive CD-ROM**
with over 1200 Clip Art Images.
- **1 CD Stomper Label Applicator**
Perfectly Centers Your Labels Every Time.
- **100 Blank Labels in Assorted Colors,**
Laser and Ink Jet Ready.
- **Mac & PC Templates for**
all major applications.

The Original **CD STOMPER**


The Professional CD Labeling Kit For Everyone
Phone: 714.250.6771 • FAX: 714.250.6775
<http://www.labelcd.com>
Dealer & Distributor Inquiries Welcome
SATISFACTION GUARANTEED!

ORDER TOLL FREE 1.888.LABEL.CD

CIRCLE 406 ON READER SERVICE CARD



We work hard for your Macintosh



Call us for the Dealers near you
Please call today: **1-800-644-1132**
<http://www.macally.com>

CIRCLE 403 ON READER SERVICE CARD

Custom Ultra Fast SCSI Tools

SCSIVue™ Active Terminator

Optional Remote Display

Benefits:

- Improves SCSI Bus Performance
- Less Errors; More Reliable Data Transfer
- Diagnoses Problems • Analyzes Signal Quality

Features:

- Active Regulation • Supports 68 Pin, 50 Pin
- Status Indicators • Gold Contacts



From: \$59

SCSIVue™ Gold Diagnostic Cables

Benefits:

- No Loss Of Important Data
- Faster Performance
- Test Cable Integrity

From: \$39

Ultra SCSI Std. & Wide Compatibility



From: \$39

SCSIVue™ Teflon Custom Internal Cables

Benefits:

- Less Errors, Ultimate Performance
- Silver Wire Improves Signal Quality

Custom Internal Cables in 1 DAY!



SCSIVue™ Active Digital Switch

SCSI 2+3 COMPATIBLE

Benefits:

- Share SCSI Devices Between 2 Computers
- Attach up to 14 Devices to 1 Computer

Features:

- 2-1 Active Digital Switch/Repeater
- Regenerates SCSI Signal for Long Runs



Granite D-I-G-I-T-A-L

The SCSI Solution Company

3101 Whipple Rd. • Union City, Ca. 94587 • Ph: 510-471-6442 • Fax 510-471-6267

CIRCLE 408 ON READER SERVICE CARD



888-AAA-MEDIA

AAA Media, inc BACK UP SOLUTION • SPECIALIST •

<http://www.aaamedia.com> • e-mail: sales@aaamedia.com

TEL: 818-718-9625 FAX: 818-718-9626

4MM DAT			HARD DRIVES			MEDIA		
HP C1533A	4-8 GB	\$878	SEAGATE ST15150N	4.3 GB	\$1048	4 MM 60/90M	\$5.25/7.25	
*CDT 8000	4-8 GB	\$898	MICROPOLIS 1991A/V	9.0 GB	\$1798	4 MM 120M	\$22	
WANGDAT 3400	4-8 GB	\$838	ALL DRIVES INCLUDE 1 FREE MEDIA!			8 MM 112/160M	\$5.75/12	
SONY 5000	4-8 GB	\$738				CDR 74M	\$7.25	
HP 35480A	2-4 GB	\$708	LARGEST DISTRIBUTOR OF STORAGE PRODUCTS			DLT 2/3/3XT/4	\$35/41/55/99	
*ARCH. 4322	2-4 GB	\$548				1024 B/S 650 MB	\$42	
WANGDAT 3200	2-4 GB	\$678	CALL FOR TAPE & OPTICAL LIBRARIES			1024 B/S 1.3 GB	\$49	
HP 35470A	2.0 GB	\$598				1024 B/S 2.6 GB	\$75	
*WANGDAT	2.0 GB	\$528	MAXELL • 3M • HP			DLT		
*HP C1553	24-48 GB	\$1998						
8 MM EXB			FUJI			DLT 2000		
EXB 8200	2.3 GB	\$428	230 MB	\$428	DLT 20XT			15-30 GB
*EXB 8205XL	2.3-7 GB	\$1228	*HP C1716C	650 MB	\$698	*DLT 4000		
EXB 8500	5 GB	\$1018	SONY E501	650 MB	\$738	20-40 GB		
EXB 8505	5-10 GB	\$1298	MAXOPTIX T-2	1.0 GB	\$608	*DLT 4700		
*EXB 8700	14 GB	\$1148	*SONY F521	1.3 GB	\$1098	280 GB		
BEST PRICE & QUALITY GUARANTEED • QUANTITY & CASH DISCOUNTS			HP C1716T			\$1788		
• ALL TAPE DRIVES INCLUDE SOFTWARE AND 1 FREE MEDIA • • EXTERNAL PACKAGE ADD \$98 FOR H.H. / \$115 FOR F.H. •			HP C1113F			2.6 GB		
			*MAXOPTIX			2.6 GB		
			*EXTERNAL PACKAGE INCLUDED					

Stop Pentium Chip Theft With The CoverLock™

Locks CPU Case/CD ROM/Floppy Drive

- Prevents Pentium processor and memory chip theft
- Secures all internal components
- Universal – Fits most CPU Models
- Locks in CD ROMs
- Optional security cable available to lock down equipment
- Locks available keyed alike, keyed differently, or master keyed
- Lifetime warranty on all components

Quick And Easy To Install!

Suggested Retail Price \$29.95



Computer Case Lock (COV-400)



CD Rom Lock (COV-400)

Secure-It

Order now — Call 800-451-7592...

18 Maple Court, East Longmeadow, MA 01028, USA phone 413-525-7039
FAX: 413-525-8807 EMAIL: secure-it@owls.com INTERNET: <http://www.secure-it.com>

©1996 Secure-It, Inc.

RECORD CDs



AVD CD RECORDERS

4X/6X
4X Write, 6X Read
\$899

2X/6X
2X Write, 6X Read
\$499

2X/4X
2X Write, 4X Read
\$449



JAZ/CD-R DUO

\$999

We used our two Extremes to burn over 100 CDs... We couldn't have finished our project on time without the Extremes!

— Greg Lobeda, McDonnell Douglas

"I am absolutely floored! An amazing piece of hardware"

— John Manzoni, MacNet

MEDIASTORE...has produced a real excitement in my product line. The Extreme fits an important need for my customers"

— Edward Craig, Craig Systems

MORE CD-R BLANKS

\$5.99

w/purchase of CD-R Drive
limit 10 - 7.49 by themselves
Kodak • TDK • Verbatim • Mitsui

CD-R PRINTER

\$1495

CD's, Paper, or Cardstock
720 DPI
Brilliant Color

CD LABELER

• Interactive CD of Templates
• 100 Labels and Jewel Cards
• 100% Accurate Label Applicator

Only \$79

CD-R Safe Pens \$4.95

MEDIA SPECIALS

OPTICAL

128MB...\$10.99
230MB...\$14.99
650MB...\$29.99
1.3GB...\$39.99
2.6GB...\$69.99

SYQUEST JAZ & ZIP

44MB...\$33
88MB...\$37
200MB...\$55
105MB...\$45
270MB...\$52
JAZ 1GB \$95
ZIP 100MB \$14.99

CD DUPLICATION SYSTEM

16 CD's per hour
(see our website under Changers) or ...

CALL



JAZ 1GB Removable HD

\$449 External w/Cartr.

APEX 4.6GB
Fastest, Highest Capacity, Optical Drive Ever! - MacUser, Feb 96

\$1565

SOFTWARE

ASTARTE

CD-DA Mac software for writing "Red-Book" Audio CDs \$399
CD-COPY Mac software for bit by bit copying of CDs \$199
M-PACK MPEG Encoding software for Mac \$399
TOAST 3.0 The #1 CD Writing SW for Mac, Improved \$299
STUDIO W/TOAST 3.0, CD-DA, & CD-Copy \$499
digidesign

AUDIOMEDIA III Mac PCI Audio I/O card \$699
MASTERLIST Mac software for writing Pro Audio CDs \$499
SESSIONS Audio Edit software \$199
PROTOCOLS Professional Audio... For use w/PCI \$699
MACROMEDIA DIRECTOR 5 #1 Authoring Tool \$499

MEDIASTORE

See us at <http://www.mediastore.com>

800-555-5551

NEVER UNDERSOLD!

ph. 714-974-3351 • fx. 714-279-1690

Macworld SHOPPER

Mobile Computing Peripheral Products Systems & Peripherals

BookEndz™ PowerBook™ Docking Stations

Slide in to convert your PowerBook to a complete desktop system, slide out for portability!

- Eliminates the need for a desktop computer
- Fast, reliable connections every time
- Dock/undock in seconds
- Low cost
- Eliminates cable confusion
- Supports all rear ports
- Adds only 3" to rear of PB when docked

- Free NoteBook Enhancements Catalog
- Foreign telephone adaptors
- Monitor stands



Models for 1400,
5300/190, 500, &
100 series

Orders: 800-682-4987

Pilot Technologies, Inc., Minneapolis MN Tel: (612) 828-6002 Fax: (612) 828-6806
URL: <http://www.pilot-tech.com/> Email Address: pilottech@aol.com

CIRCLE 419 ON READER SERVICE CARD

FAST CASH

For ALL Macs, Memory & Peripherals — Working or not

TOP DOLLAR PAID

Mac Traders (800)990-0995

(310) 576-2466 Mon.-Fri. 9 AM-6 PM Sat. 10 AM-4 PM (P.S.T.) Fax: (310) 394-7323
1511 Lincoln Blvd. (bet. Broadway & Colorado), Santa Monica CA. 90401

www.macworld.com/buyers/guide

Buyer's Guide



Want bargains online?
Bookmark the
Web Shopper at:

Macworld ONLINE

Contact Macworld on
how to advertise.
(800) 888-8622

Lowest Prices Guarantee

Powermacs

9500/200 32/2gb cd 3449
9500/132 16/2gb cd 2199
8500/180 32/2gb cd 2799
8500/150 16/1gb cd 2249
7600/132 16/1gb cd 1699
7200/120 16/1gb cd 1289

Powerbooks

1400c/133 16/1g cd 3799
1400c/117 16/1g cd 3279
1400cs 12/750 cd 2699
1400cs 12/750 2299
5300c/5300cs Call

Performa

6400/200 16/2GCD 1749
6400/180 16/1GCD 1199
6360/160 16/1GCD 1099
6300 / 6200 / 5200 Call

PowerComputing

MOTOROLA

UMAX \$ CALL \$

LARGE MACINTOSH INVENTORY

order today (800)505-8991

e-mail: eficohen@earthlink.net

Tel:(818)505-8991 Fax:(818)505-8992



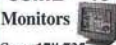
THE MAC STORE

11026 Ventura Blvd Studio City, CA 91604

CIRCLE 442 ON READER SERVICE CARD



POWERMACS
MEMORY
64MB 299
32MB 189
16MB 84
08MB 49



Monitors

Sony 17" 735

Sony 20" 1589

Apple 1710AV 929

Apple 1710 849

Apple 1705 679

Apple 15" AV 479

Printers

Epson

HP

Apple

Styl 1500 199

Styl 1200 129

WE GUARANTEE QUALITY

AND BEST PRICES SINCE 1987

NO TAX OUTSIDE CALIFORNIA

ALL PRICES REFLECT

C.O.D. CASH DISCOUNT

Prices are subject

to change w/o notice

POWERMAC
7200/120 8/500/CD \$1699
7200/120 16/1.2 GIG CALL
7600/13216/1GIG CALL
8500/13216/1GIG/CD CALL
9500 CALL

PRINTERS
LWRITER 12/640 CALL
LWRITER 4/600 \$889
HP 6MP CALL
HP 1600 C/PS CALL
HP 4MV \$2699
STYLEWRITER 1500 CALL
STYLEWRITER 2500 \$349
DESKWRITERS CALL

POWERBOOK
190 8/500 \$1099
190cs 8/500 \$1499
5300 8/500 \$1299
5300CS/100 CALL
5300C/100 CALL
5300CE/100 CALL

UMAX / SUPERMAC
S90L CALL
S900D CALL

SCANNERS
MICROTEK SCANNERS CALL
UMAX S12 \$749
POWERLOOK II \$1929
HP SCANJET 4C \$969
ES1200/PRO \$1175
AFA ARCUS II \$1899

RADIUS
APPLE 1710AV \$1049
APPLE 1705 \$779
CPD 17SF2 \$799
PRECISION 17"R CALL
PRECISION 21"R \$2299
THUNDER COL. CALL
CPD 15SF CALL

NEC
NEC 17XV \$779
NEC 17XP CALL
NEC 21XE \$1899
NEC 21XP \$2199

Performas
6360 \$1499
6400/180 CALL
6400/200 CALL
APPLE SUPERDRIVE \$149
INTERNAL / WITH EXCHANGE

CIRCLE 474 ON READER SERVICE CARD

COMPUTER REVELATIONS

COMPAQ HEWLETT PACKARD Tektronix
FUJITSU Microsoft radius and more!

POWERBOOK
1400's
MOTOROLA
STARMAX
3000 & 4000
SYSTEMS
Are Here Now!
See Us For
All Your Software
Needs!

ALL APPLE PARTS & ACCESSORIES IN STOCK
Rentals / Service available in NYC area

CALL US FOR ALL OF YOUR LEASING NEEDS!

1 800 275-9924
in NY 516 737-0800

FAX 516 737-0923

331E DANTE COURT HOLBROOK NY 11741

NEW & USED BOUGHT & SOLD

Ask about our EXTENDED WARRANTY

CIRCLE 474 ON READER SERVICE CARD

"I always look at the entire
Macworld Shopper section to
see what is available. I also
like to check the prices of all
the different products."

-Owner,

Computer Consultants

Search Harry Campbell's Macworld report,
January 1997

Macworld
SHOPPER

MACS & POWERBOOKS WANTED

TOP \$\$\$ PAID

Any Quantity
Fast Turnaround
Trade Ups Welcome
FedEx check delivery
available

MAC
Solutions
1416 Wilshire Bl.
Santa Monica, CA 90403
www.macsolutions.com

We Buy, Sell & Trade
New & Used Macs

(800)80-WE-BUY
Tel:(310) 394-0001 Fax:(310) 394-7744

CIRCLE 473 ON READER SERVICE CARD

Trinitron™ Super Sale

17" Std.-Res. Trinitron (R) 285.00
17" Hi-Res. Trinitron (R) 325.00

Apple 15" MS Multi-Scan (R) 319.00
Apple 14" MS Multi-Scan (R) 249.00

Drives
Int. 160 MB Hard Drives HH (N) 65.00
Int. 40 MB Hard Drives TH (N) 25.00
Apple 1.44 FDHD (N) 99.00
Ext. 4x CD-ROM Drives (N) 119.00
Int. 4x CD-ROM Drives (N) 85.00

ADB
Radius Extended Keyboard (N) 45.00
Radius Mouse (N) 16.50

Check out our 80 page Online Catalog!
<http://www.poweron-line.com>

(916) 652-1880 • (916) 652-1881 FAX

CPU's (BEST POWERCOMPUTING PRICES!)
PowerBook 145 4/40 (U) 399.00
PowerBook 160 8/80-12/120 499/549.00
PB Duo 2300c 32/750/14.4 (N) 1799.00
Mac SE 4/160, Key & Mse (U) 165.00
Mac SE/30 4/160, Key & Mse (U) 325.00
P6205 24/1000 603/75 (R) 939.00
P6300 16/1.2/CD 603/100 (R) 1149.00
P5200 8/800/CD/15" mtr (R) 1189.00
HP ScanJet IIcx Mac/PC (N) 175.00
StyleWriter 2500 (R) 275.00



COMPUTER SERVICES
(800) 673-6227

Mac Storm



In California Since 1988



1-800-594-4007

Int'l (310) 829-9780

Fax (310) 315-1009

email: macstorm@k-net.net

Powermacs	Performas	Motorola Starmax	Umax/Supermac	Daystar Digital	H P	Lease Specials
7200/120 16/1g/cd/dos 1279	631/60 8/500/cd/14"/SW 1099	3000/160 16/1.2g/cd 1599	C500/160 16/1.2g/cd 1379	MP360 0/0/2x180m 4859	Deshwriter 680C 299	Starmax 4000/200 32/2.5gb 299
7600/120 16/1.2g/cd 1279	6300/75 16/1.2g/cd (R) 1199	3000/160 32/2.5g/cd 1895	C600/180 16/1.2/cd/m 1699	MP720 0/0/4x180m 7395	Deskwriter 870 CXi 485	Sony 200SF 17" display 485
7600/132/16/1g/cd/12 1799	6320/120 16/1.2g/cd 1299	3000/180 16/1.2g/cd 1679	C600/200 16/2.1/cd/m 1899	MP800 0/0/4x200m 8595	Laserjet 6MP 885	Appledesign Keyboard Only \$119 per month ***
8500/120 16/2g/cd 1899	6360/160 16/1.2g/cd 995	3000/180 32/2.5g/cd 1945	C600/240 24/2.1/cd/m 2195	Nupower 360 upgrd 1299	Laserjet 5M 1689	9500/200 32/2gb/cd 1869
8500/132 16/2g/cd 1899	6400/180 16/1.6g/cd 1199	3000/200 16/1.2g/cd 1875	J700/150 16/2.1g/cd 2575		Deskjet 1600CM 2679	Applevision 1710 3699
8500/150 32/1.2g/cd 1899	6400/200 16/2.4g/cd 1650	3000/240 32/2.5g/cd 2475	J700/180 24/2.1g/cd 2875		Laser 4MV 11x17 829	Appledesign Keyboard Only \$163 per month ***
8500/180 32/2g/cd 1899	6400/200 Video Editing 1650	4000/160 16/1.2g/cd 2129	S900/150 16/2.1/cd 3199		Scanjet 4C 829	9500/200 32/2gb/cd 1869
9500/200 32/2g/cd 3649		4000/160 32.2.5g/cd 2275	S900/200 32/2.1/cd 3485		Color LJ 5M 6845	Performs 6400/180 1869
9500/180mp 3649		4000/200 16/1.2g/cd 2399	S900/225 32/2.1/cd 3899			Multiplescan 1705 display 479
		4000/200 32/2.5g/cd 2599	S900/180mp 32/2/cd 4199			Stylewriter 2500 Only \$122 per month ***
Apple Monitors	Workgroup Servers	Agfa	NEC	Truevision	Miscellaneous	
Multiplescan 14" 489	Duo 2300C 20/1.1GB 1799	Snapshot 600dpi 349	MultiSync C400 299	Bravado 1000 625	Iomega Zip Drive ext 185	9500/180 MP 160/2gb/cd 350
Multiplescan 15" Color 489	1400cs/117 12/750 1400cs 16/750/cd6x 1400cs/117 16/1gb/cd6x	Studiostar LE 799	XV 15+/XV 17+ 439/759	Targa 1000 1899	Iomega Jaz Drive ext 479	Applevision 1710AV 109
Multiplescan 1705 489	8550/200 32/2g/cd/AS 4649	Arcus II 1749	M500 15" Display 485	Targa 2000 2049	Wacom Artiz II 6x8 299	Connectix QuickCam 179
Applevision 1710 489	8550/200 32/2g/cd/dat 4749		M700 17" Display 759	Targa 2000 Pro 3379	GV 33.6 modem 179	Connectix VideoPhone 45
Applevision 1710AV 489	8500 32/2g/cd/dat/AS 5495		P750 17" Display 995	Targa 2000 DTX 6495	H.P 2Gb HD internal 350	Connectix Quickcard 179
Multiplescan 20" 489			P1150 21" Display 1899	Targa 2000 RTX 8995		
Apple Printers	Network Servers	Radios	Sony	Viewsonic		
ImageWriter II 389	500/132 32/1g/cd 6999	Precisionview 21 2245	100SX/100SF 15" 399/479	15 GA 15" 399		
Stylewriter 2200 375	500/132 32/1g/cd/dat 8699	Thunder 30/1152 779	200SX/200SF 17" 679/769	17 GA 17" 659		
Stylewriter 1500 269	700/150 32/1gb/cd 9599	Precisionview 21 2245	17SE2T 949	PT 775 899		
Stylewriter 2500 359	700/150 48/4g/cd/dat 11999	Thundercolor 30/1152 1499	300 SFT 20" 1599	17 PS 17" 719		
Laserwriter 12/640 PS 1399	700/200 24/8g/cd 13799	Precisionview 21 2245	GDM-20SE2T 20" 1879	20 G 20" 1195		
Col. Laserwtr 12/660 1399				P 815 21" 1695		
				G 810 21" 1459		
				PT 810 21" 1675		
Call for Current prices	Nikon		Microtek			
	Scantouch AX 110 339		Scanmaker E3 299			
	Scantouch AX 210 699		Scanmaker E6 559			
	Scantouch AX 1200 1569		Scanmaker E6 Pro 739			
	Super Coolscan 1899		Scanmaker III 1365			

CIRCLE 440 ON READER SERVICE CARD

Duo Dock Plus

- Ethernet
- 1MB VRAM
- Nubus Slots
- Fits all Duos
- New 1 Year Warranty



\$429

Apple 7500 Upgrade

- PowerPC 604/120
- Upgrade Card
- Work on 7500
- 30-40% Faster
- Add 512K Cache for \$129



\$99

Apple CD600i

- 4X CD-ROM
- Internal Tray Loading
- 300i+ only \$49
- 300e+ only \$99
- Mounting Kit Not Included
- Most Machines only \$20



\$99



MacWorks

"Low Prices, Great Service... That's The Deal!"

800-482-2705

web: <http://www.macworks.com/>
e-mail: sales@macworks.com

DESKTOP CPUs

PowerMac 7100/66 -16/250/CD/Soft Windows \$999
PowerMac 8100/80 -16/250/CD/Soft Windows \$1199
PowerMac 8100/110 -16/2GB/CD \$1599
PowerMac 7500/100 -16/500/CD \$1399
PowerMac 9500/200 -32/2GB/8xCD/ATI VR \$3999

Performa 5200/75 -8/500/CD/kybd/14.4 \$999
Performa 6200/75 -8/1000/CD/kybd/14.4/Monitor \$999
Performa 6214/75 -8/1200/CD/kybd \$799
Performa 6320/120 -16/1200/CD/28.8/kybd/Mon/TV \$1399
Performa 6360/160 -16/1000/8xCD/28.8/kybd \$1099
Performa 6400/180 -16/1600/8xCD/28.8/kybd \$1399
Quadra 610 (used) -12/230/CD/14"/kybd \$749

PORTABLES

PowerBook 1400cs -12/750/Floppy \$2499
PowerBook 1400cs -16/750/6xCD \$2999
PowerBook 1400c -16/1200/6xCD \$3499

MONITORS

Apple Multiscan 15 - Refurbished/New \$219/\$329
Apple Multiscan 15 - Refurbished/New \$349/\$449
AppleVision 1710 - Display \$899
AppleVision 1710AV - Display \$849

PRINTERS

StyleWriter 1200 - Refurbished \$149
Color StyleWriter 1500 - New \$259
Color StyleWriter 2400 - Refurbished/New \$199/\$249
Color StyleWriter 2500 - New \$349
LaserWriter 12/640PS - 600 dpi \$1499
LaserWriter 16/600PS - Refurbished/New \$1499/\$2199

PARTS/ACCESSORIES

Atlantic Technology - Sub/Satellite Speaker System \$129
Manual/Auto Floppy - with exchange \$49/\$79
Apple CD300i+ - internal 2x CD-ROM \$49
PB 500 100Mhz Upgrade - Includes 8MB of RAM \$399
PB 500 8MB/Duo 8MB - RAM Module \$79
PowerMac AV Card - for 6100/7100/8100 \$249
6100 DOS Card - 486DX266/Full Kit \$89/\$149
PB 190 Upgrade - Video Out Card \$79
Performa MPEG Card - for 630-6300 series \$39
LC 580/Performa 631 - Main Logic Board \$149
CPU Power Supplies - most Apple CPUs available \$CALL
MODEMS
28.8 US Robotics - PCMCIA Modem \$129
GV Teleport - 33.6 Internet Edition \$179

Prices Subject to Change • All Prices Represent 2% Cash Discount • We only ship FedEx • *Denotes Refurbished • Voice 913-599-6227 • Fax 913-599-6111

CIRCLE 444 ON READER SERVICE CARD

Computer Pros

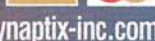
Your Macintosh Source.

Ask for Our Latest
Low Prices!

1-800-319-4MAC (4622)

International Orders (305) 825 9574

E-Mail: mailman@synaptix-inc.com Web address: http://www.synaptix-inc.com



POWER MACINTOSH

7200 120MHz 16/1.2GB/8xL2...	\$1395
7200 120MHz 16/1.2GB/8xL2/DOS...	\$2095
7600 132MHz 16/1.2GB/8xCD/L2...	\$1995
8500 150MHz 16/2GB/4xCD/L2...	\$2495
8500 180MHz 32/2GB/8xCD/L2...	\$3095
9500 180MP 32/2GB/8xCD/L2...	\$4795
9500/200 32/2GIG/8xCD/L2...	\$3995
ALL APPLE WORKGROUP SERVERS...	CALL

SCANNERS

Apple ColorOne 1200/30...	\$785
Apple ColorOne 600/27...	\$585
UMAX Vista S-8 w/Tran...	\$895
VISTA S6E...	\$595
UMAX PowerLook2 w/Trans...	\$2995
Trans.Adapter for S-6/S-8...	\$295
VISTA S-12 w/trns...	\$995
Adobe Photoshop w/ Umax Scanner...	Free

POWER BOOK

1400CS 12mb/750mb/dual-scan...	\$2395
1400CS 16mb/750mb/6xCD/dual-scan...	\$2795
1400CS 16mb/1GIG/6xCD/active-matrix...	\$3395
Duo 2300 20/1gig/modem	

SIMMS/DIMMS

4MB	\$35/55
8MB	\$65/85
16MB	\$125/165
32MB	\$245/325
64MB	\$645

PRINTERS

Apple Color StyleWriter 1500...	\$235
Apple Color StyleWriter 2200...	\$375
Apple Color StyleWriter 2500...	\$335
Apple LaserWriter 4/600PS...	\$775
Apple LaserWriter12/640PS...	\$1495
Apple LaserWriter 16/600 PS...	\$2195
Apple ColorLaserWriter12/860 PS...	\$5795
GCC Elite XL 608...	\$2195
GCC Elite XL 808...	\$2895
GCC Elite XL 1208...	\$3895

APPLE MONITORS

Apple MultiScan 14" Display...	\$295
Apple MultiScan 15" Display...	\$385
Apple MultiScan 15"AV Display...	\$445
Apple MultiScan 1705 Display...	\$665
Apple MultiScan 1710 Display...	\$895
Apple MultiScan 1710AV Display...	\$995
Apple Vision 20" MultiScan...	\$1895

PERFORMAS

6360 160MHz/18/1.2GIG/8XCD/28.8...	\$1325
6320CD 16/1.2GB/4xCD/15/28.8...	\$1195
6400/180 16/1.2GB/8XCD/ 28.8...	\$1395
6400/200 16/1.2GB/8XCD/ 28.8...	\$1795

PERIPHERALS

Apple QuickTake 150...	\$585
Apple Design Power Speakers...	\$135
Newton Message Pad 130...	\$795
PENT DOS CARD P-100...	\$995
586-DOS CARD 100MHZ...	\$799
Newton Message Pad 2000...	CALL
E-Mate 300...	CALL

KEY BOARD

Apple Extended Keyboard...	\$145
Apple Design Keyboard...	\$75
MACally Extended Keyboard...	\$72

STORAGE

Iomega ZIP Drive...	\$195
Iomega Jaz Drive...	\$495
Syquest EZ-Flyer 230MB...	\$285
Syquest 200MB	\$435
SyJet 1.5 MB...	\$495

*Govt/Education PO'S Welcome *Prices reflect a 3% cash discount. *Prices subject to change. *Hablamos Español

Your Digital Video & Pre-Press Specialists

800-429-7779

PHONE 714-574-3939

Fax 714-574-3947

Email:Clucero126@aol.com

3101 W. Pacific Coast Highway
NewPort Beach CA 92663

PowerMac

9500 200MHz 80/2G/CD...	\$3895
9500 200MHz 64/4G/CD...	\$4350
9500 180MPMHz 32/2G/CD...	\$4795
9500 150MHz 32/2G/CD...	\$3295
8500 180MHz 64/2G/CD...	\$3225
8500 150MHz 16/2G/CD...	\$2695
8500 120MHz 16/1G/CD...	\$1925
7600 120MHz/16/1G/CD...	\$1899
7600 132MHz 64/2G/CD...	\$2454

Work Group Servers

7250/8550 16/2G/CD...	\$3199/\$398
-----------------------	--------------

Umax/ Motorola

UMAX S900L 604E 200MHZ...	\$3825
UMAX S900L 604E 180MHZ...	\$3775
UMAX S900L 604E 150MHZ...	\$3399
UMAX J700/150 16/2G/CD...	\$2698
MOTOROLA 160 16/1G/CD...	\$1632
MOTOROLA 160MT 32/2G/CD...	\$1926
MOTOROLA 200DT 16/1G/CD...	\$1910
MOTOROLA 200MT 32/2G/CD...	\$2075

POWER BOOKS

1400CS /117 12/750...	SCALL
1400C /117 16/1G/CD...	SCALL

BLAZING EFFECTS!

Adobe After Effects P3.1...	\$1375
Adobe After Effect 3.1	\$595
Ultimate Plug-in	\$1495
Borris Effects	\$325
Meta Tools Final Effects...	\$575
Adobe Photoshop v3.0.5...	\$395
Adobe Page Maker v6.0...	\$495
Adobe Premiere v4.2...	\$425
Adobe Illustrator v6.0...	\$350

Ask About
DayStar
Genesis to
800 MHz

Video Editing Systems

Radius Video Vision PM 7600/132/80/1G/CD...	\$10,175
Radius Video Vision PM 9500/200/80/2G/CD...	\$12,050
Radius Video Vision PM 9500/180MP/96/2G/CD...	\$13,595
Targa2000 PM 7600/132/80/1G/CD...	\$9,721
Targa2000 PM 9500/200/32/2G/CD...	\$11,289
2000 Pro PM 9500/200/32/2G/CD...	\$11,683

Above w/8GB Wide array, 17" Monitor, Keyboard, Adobe Premier

Targa2000 RTX PM 7600/132/80/1G/CD...	\$16,844
Targa2000 RTX PM 9500/200/96/2G/CD...	\$18,575
Targa2000 RTX PM 9500/180MP/96/2G/CD...	\$20,114
Media 100qx PM 9500/200/64/2G/CD...	\$11,975
Media 100QXC DayStar Configuration...	SCall
100QXC PM 9500/180MP 64M/2G/CD...	\$13,600

Above w/8GB Wide array, 17" Monitor, Keyboard, Adobe Premier

SilkScreening System

Imagesetter - Agfa or LinoType 18" Wide

Includes RIP	
Adobe Postscript	
2400 DPI	
Factory Refurbished	
Call for New & Refurbs !!	

Pre Press System

Complete Color Pre Press System

Includes Power Mac 7500	
24/1G, 17" Color Monitor,	
Software, Ex Keybd., AGFA	
Color Scanner, Color Proof	
Printer, Imagesetter w/Rip	
& Processor,	

Targa VideoStation

PM 7600/132/72MB/2GB/CD

Targa 1000 PCI, Adobe	
Premier 4.2, Apple 17" Color	
Monitor, Ext.Keyboard, 4.2GB	
Disk Array Wide PCI, Adobe	
After Effects v3.0, Borris	
Effects. Reflects Cash Price	

\$7,995

MicroShare Station

PM 9500/200/128MB/2GB/CD/ATI

Targa RTX2000 PCI,	
SpherOus 1.0, After	
Effects 3.1, 17" Color	
Monitor, Ext.Keyboard,	
8GB Dual Channel	

Wide Disk Array! and much more!!!

Media 100qx



MEDIA 100 QX	
7600/132/32MB/1G	
Adobe Premier 4.2, After	
Effects 3.0, 17" Monitor,	
Keyboard, 4100 w/SCSI Wide Array, Vicent	
Component	

\$8,775

GENESIS MP 800

GENESIS MP 720 + 128M/2G/CD/4M VM	
17" MONITOR, EXTENDED KEY-	
BOARD, 4G HARD DISK, ATTO	
CARD SINGLE CHANNEL,	
ADOBE AFTER EFFECTS !!!	

Call for the 720+ and 800

\$15,975

SCITEX DIGITAL VIDEO

introduces the...

MicroSphere



Explosive power.
Right on the desktop.

With the strength of the two most prominent video pioneers how can you go wrong? The company brings together the digital video design and the engineering expertise of Abekas® and the revolutionary nonlinear finishing workstation of ImMix®. Scitex introduces... Realtime, Dual-stream video, easy-to-use operator interface, Networkability, Alpha Channel Output, Max 360 KB per frame & much more. For more information contact our Digital Video Technical Sales 714-574-3939



PROFESSIONAL INC.

800.244.4622

Fax. 818.719.9115

ALL PRODUCTS CARRY 1 FULL YEAR WARRANTY.
ALL PRICES ARE CASH DISCOUNTED & SUBJECT
TO CHANGE. WE ACCEPT VISA/MC/AMEX. NO TAX
OUTSIDE CA. CONSULTANT, DEALER & INTERNA-
TIONAL SALES WELCOME.

6430 VARIEL AVE, #105, WOODLAND HILLS, CA 91367

POWER MACS



7200/120	16/1.2-CD	1875
7200/120	16/1.2-CD dos	1975
7600/132	16/1.2-CD	1795
8500/150	16/1.2-CD	CALL
8500/180	32-2000-CD	2495
9500/150	32-2000-CD	CALL
9500/180	32-2000-CD	4555
9500/200	32-20000-CD	3595

UMAX COMPUTER CORP.

S900L 225	CALL NOW!	3888
S900L 200		3450
S900L 180 DP		4155

PERFORMAS

6320	16/1.2-CD. 15"	1295
6360	16/1.2-CD 28.8	1075
6400/180	16/1.6-CD 28.8	1099
6400/200	16/2.4-CD 28.8	1649
6400/200 VIDEO	32/2.4-CD	2149

GLOBAL VILLAGE / SUPRA

TELEPORT SPEAKER	255
TELEPORT INTERNET 33.6	155
POWER PORT PC	265
POWER PORT PC 10 BASE T	425
SUPRA SONIC 33.6	222
SUPRA 33.6 V.34	188
SUPRA EXPRESS 33.6	125
U.S. ROBOTICS 28.8	149
U.S. ROBOTICS 28.8/ VOICE	179

**SCHOOL, GOV'T,
P.O.'S WELCOME!**
**CALL FOR
SCHOOL SPECIALS!**

We can customize to your individual
needs and our prices can't be beat!
Call our helpful experts today!

1-800-244-4622



Call 4 Catalog!

- WE SPECIALIZE IN CUSTOM
MADE CONFIGURATIONS
- LEASING BY TRANS LEASING
- BEST PRICE, AVAILABILITY
- HELPFUL TECH SUPPORT
- IN BUSINESS SINCE 1988

POWERBOOKS



5300CE	32/1000	3495
1400CS	12/750	2375
1400CS	16/750-CD	2729
1400C/117	16/1 GIG-CD	3344
1400C/133 NEW	16/1 GIG-CD	CALL
DUO 2300	8/750M	1395
DUO DOCK PLUS		459

SCANNERS



AGFA SNAP SCAN	338
AGFA STUDIO STAR/ P.S. LE	770
AGFA STUDIO STAR/ P.S.FULL	975
AGFA ARCUS II	1725
AGFA DUOSCAN	4750
NIKON COOLSCAN	1159
NIKON SUPER COOLSCAN	1879
POLAROID SPRINTSCAN 35/LE	717
POLAROID SPRINTSCAN 35/ES	1469
POLAROID SPRINTSCAN 35 PLUS	1888
LINOTYPE HELL JADE	850
LINOTYPE HELL SAPHIRE	2195
LINOTYPE HELL SAPHIRE ULTRA	3350
LINOTYPE HELL OPAL 11x17	5350
UMAX S6E/ PHOTO DELUXE	299
UMAX S12/ PHOTO SHOP LE	679
UMAX POWERLOOK II	1888
UMAX POWERLOOK 2000	2950
UMAX MIRAGE 11x17	5650
MICROTEK SCANMAKER III	1388

DIGITAL CAMERAS



COMPLETE LINE OF DIGITAL CAMERAS!

CASIO QV10A+	399
KODAK DC 25 / 50	444/ 844
POLAROID PDC/ 40	CALL
PIXERA PERSONAL/ PRO	535/ 999

DIGITAL VIDEO

**MEDIA
100**

**DIGITAL
VIDEO
SYSTEM**

MEDIA 100 qx 3695
(with component) 5150

TARGA 2000 /2000 PRO	2750 / 3395
TARGA 2000 PRO + 8 GIG DISK ARRAY	6350

- MEDIA 100 qx w/9500/200 / 96/2000-CD 10995
- MEDIA 100 qx c/9500/200 / 96/2000-CD 12750

INCL. 8 GIG DISK ARRAY, 17" MONITOR, KYBD, ADOBE PREMIERE

- TARGA 2000 PRO w/9500/200 / 96/2000-CD 10995

INCL. 8 GIG DISK ARRAY, 17" MONITOR, KYBD, ADOBE PREMIERE

- TARGA 2000 RTX w/9500/200 / 96/2000-CD 19500

INCL. 8 GIG DISK ARRAY, 17" MONITOR, KYBD, SPHERROUS

MONITORS

APPLE 15" / 15 AV	395 / 469
1705/1710 MULTISCAN	675 / 845
1710 AV / 20"	985 / 1795
RADIUS PRESSVIEW 17SR	1888
RADIUS PRESSVIEW 21SR	3049
RADIUS PRECISION VIEW 21	2222



RASTEROPS MC 611	789
RASTEROPS MC 20	1299
RASTEROPS MC 801	1599
RASTEROPS MC 801 HR	1799
SONY 100 SF	465
SONY 200 SF	769
SONY 300 SF	1625



DRIVES

ZIP / JAZ	185 / 465
EZ QUEST EXTERNAL JAZ	425
PINNACLE MICRO APEX 4.6	1495
PINNACLE MICRO VERTEX 2.6	1333
YAMAHA 4x4 TOAST	950
8 / 16 GIG DISK ARRAY	2850 / 5650
8X CD ROM EXTERNAL	199
SYQUEST EZ 135	119
SYQUEST EZ FLYER 230	295
SYQUEST SYJET 1.3	488
EZ QUEST INTERNAL JAZ	389
EZ QUEST CDR & JAZ DUO	1395

MEDIA

10 PACK ZIP CARTRIDGES	127
JAZ CART / 5 PACK	89 / 439



ACCELERATORS

POWERSHOP	1775
DAYSTAR N POWER 360+	1388
MAX POWER 604-180	795
MAX POWER 604-200	945



PRINTERS

STYLE 1200/2400/2500	169/242/299
LASER 4/600 / 12/640	747 / 1399
LASER 12/660	5777
HP 6 MP / 5M	899 / 1695
HP 4 MV / 1600CM	2699 / 1949
GCC ELITE 600 / ethernet	1099
GCC ELITE XL 608	2099
EPSON STYLUS 500 / PRO	279 / 379
EPSON PRO XL / POSTSCRIPT	1675 / 255

VIDEO BOARDS

IMS TWIN TURBO 4MB	399
IMS TWIN TURBO 8MB	675
PRECISION COLOR 8/160	349
THUNDER POWER 1920	1159
THUNDER 3D	2950
ATI 2MB	245
ATI 4MB	345



CALL FOR FREE CATALOG!

Shop On-line at <http://www.macprofessional.com>

CIRCLE 495 ON READER SERVICE CARD

COMPU.D 1-800-929-9333

International, Inc.

6741 Van Nuys Blvd., Van Nuys, CA 91405

<http://www.compu-d.com>

E-Mail: csales@compu-d.com

Sales (818) 787-3282 Fax (818) 787-5555



Same Day
Shipping



Personal & Business
Leasing By



All Prices Are Based on C.O.D. MWAd#
Order & Subject To Change! 0497

* Factory refurbished with Warranty



PowerMacs

Work Group Servers	Best Prices!
WGS 8550/200 32-2GB, CD, APPS	\$4,395
WGS 7250/120 16-1.2GB, CD	\$1,295
7600/120 16-1.2GB, CD	\$1,545
7600/132 16-1.2GB, CD	\$1,695
7200/120 16-1.2GB, CD	\$1,195
7200/120PC 16-1.2GB, CD DOS	\$1,795
7100/7500/8100 Systems	CALL

8500/180
32-2GB, CD
\$2,495

9500/200
32-2GB, CD
\$2,995

8500/150 16-2GB, CD	\$1,995	9500/180MP 32-2GB, CD	\$3,945
8500/132 16-2GB, CD	\$1,845	9500/150 16-2GB, CD	\$2,195
8500/120 16-1GB, CD	\$1,645	9500/132 16-2GB, CD	\$1,895

COMPU-D
Deal of the
month



DIMM & SIMM Memory

16MB \$85 - 32MB \$145 - 64MB \$265

Performa

6400/200 16/2.4GB, 8xCD, KB	\$1,545
6400/200 16/1.6GB, 8xCD, KB	\$1,365
6320 16/1.2GB, CD, TV, Modem, KB	\$1,095
*6300/100 8/1GB, CD	\$895
6220/75 16/1GB, CD TV, KB, Modem	\$895
6200/75 8/800, CD	\$745
5280 8/800 CD, SVGA Monitor, KB	\$895
DOS/TV Card	CALL

6400/180 16/1.6GB, CD, KB, 28.8, No Display	\$1,095
6360/160 16/1.2GB, CD, KB, 28.8, No Display	\$999
5260 16/1.2GB, CD, KB, Modem, Display	\$1,095



Apple Displays & Printers

Apple 14"/15"/15"AV	\$289/359/459
Apple 1705/1710/1710AV	\$645/789/865
Apple 20" 20" Color Trinitron	\$1,629
Color LaserWriter 12/600 PS	\$4,995
LaserWriter 12/640	\$1,349
StyleWriter 1500/2500	\$185/299
StyleWriter 1500*/2500*	\$135/195
StyleWriter 1200*/2200 Pnt.	\$125/329

PowerBooks

Epic 1400cs/117 16-750, 6xCD	\$2,695
Epic 1400cs/117 12-750	\$2,290
Epic 1400c/117 16-1GB, 6xCD	\$3,245
Epic 1400c/133 16-1GB, 6xCD	\$3,795
5300cs/117 32-1GB	\$2,795
5300cs/5300c 16-750	\$1,995/2,395
150/520 8-240	\$695/875
Duo 280C 12-320	\$895
Duo 280 & 250 8-240	\$899/499

Mobile & Desktop Computing with Duo 2300C/100 MHz

20/1.1GB \$1,545
8/750MB \$1,245
Duo Dock+/Floppy & Adptr. \$445/195
14.4 Fax/Modem 1/all Duo's \$95
19.2 Fax/Modem 1/PB. 500 Series \$105



STORAGE

Seagate	Barracuda HD's In Stock.
Quantum Atlas 2.1GB SCSI / Wide	\$469/469
Quantum Atlas 4.3GB SCSI	\$849
Toshiba 1.35 / 2.16 IDE 2.5" for PB.	\$299/469
Imagex Zip Drive SCSI / 10 pack Cartridge	\$189/129
Imagex Jaz Drive SCSI / 5 pack Cartridge	\$489/479
VERBATIM	\$549
4x CD-R, 350KB, 650MB	

SOFTWARE Unbeatable Prices

MS Office 4.2.1	\$279	Photoshop 4.0	\$349
MS Excel	\$159	Illustrator Mac/PC	\$299
MS Word	\$149	PageMaker 6.5	\$299
QuarkXpress 3.32	\$635	Freehand 7.0	\$239

UMAX® SuperMac



S900L/225 604e, 32/2GB, CD, 4MB VRAM	\$3,195
S900L/200 604e, 32/2GB, CD, 4MB VRAM	\$2,795
S900L/180 604e, 32/2GB, CD, 4MB VRAM	\$2,645
C600L/240 603e, 24/2GB, CD, 28.8 Fax/M.	\$1,749
C500L/200 603e, 16/2GB, CD, 28.8 Fax/M.	\$1,449
C500L/180 603e, 16/1.2GB, CD, 28.8 Fax	\$1,295
C500L/160 603e, 16/1.2GB, CD, 28.8 Fax	\$899

Scanners

HC1200SE	\$499
Vista S12 (\$50 rebate)	\$150
PowerLook II	\$1,699
PowerLook 2000	\$3,495

Printers



LaserJet

6MP 8ppm, PSL2	\$895
5M 12ppm, Eth.	\$1645
5MP 8ppm, 600dpi, 3MB	\$699
4MV 16ppm, Eth. 12MB, 11x17"	\$2199
4SIMX 17ppm, 600dpi, Eth.	\$2449
5SIMX 24ppm, 600dpi, Eth.	\$3495

DeskJet 1600C 9ppm, 600dpi	\$1675
DeskJet 340C	\$275
DeskJet 870C/855C	\$475/375
DeskWriter 680C	\$269

ScanJet

4C/4P Color Scanner	\$795/469
5PMAC Ctr. Scanner	\$475

Video & Graphic Cards

IMS Twin Turbo 128M2P	\$199
Twin Turbo 128M4P	\$279
Twin Turbo 128M8	\$599
Number Nine Imagine 128 w/8MB	\$599
radius VideoVision Superia NTSC & PAL/24 Hz	\$695
TRUEVISION Targa 1000 PCI	\$1,295
Targa 2000 PCI	\$2,649

Scanners



7ppm, 600dpi, 1MB for Mac & PC P.N. C4576A	\$375
--	-------

Graphic Tablets

WACOM

ArtPad II 4x5	\$109
ArtZ II 6x8"/12x12	\$195/345
ArtZ II 12x18/UD 12x12	\$629/239

MOTOROLA

StarMax

3000/240 32/2.5GB, 8xCD	\$2,149
3000/200 32/2.5GB, 8xCD	\$1,850
3000/160 16/1.2GB, 8xCD	\$1,395
4000/200 32/2.0GB, 8xCD	\$2,295
4000/160 16/1.2GB, 8xCD	\$2,049

radius PCI Graphic Cards

Thunder 3D 1820x1080 Res./8MB VRAM	\$2,875
ThunderPower 30/1920 1820x1080 Res.	\$1,149
PrecisionColor 24/1600 1800x1200 Res.	\$549
PrecisionColor 8/1600 1800x1200 Res.	\$279
LaMons G1/Spigot II Tape	\$445/179
Thunder 30/1152	\$695
Thunder Color 30/1600	\$1,895

"Custom Configuration Specialists"

- Dealers & International sales welcome!
- Govt., University & Corporate P.O.s Welcome.
- Best Prices, Service & Delivery.

POWERMAC

6100/66 8/500/CD	845.
6100/66 16/500/CD/DOS	1095.
7100/80 8/500/CD	1195.
8100/80 16/700/CD	1495.
8100/100 8/700	1595.
8100/100 16/1GIG/CD	1795.
8100/100AV 16/1G/CD	1795.
8100/120 16/2G/CD	1895.
7200/75 8/500/4XCD	895.
7200/90 8/500/4XCD	995.
7200/120 16/1G/4XCD	1195.
7200/120 16/1.2/8XCD	1245.
7200/120 32/1.2/8XCD	1395.
7200/120 8/1.2/4CD/PENT.	2095.
7500/100 16/1G/4XCD	1295.
7600/120 16/1.2G/4XCD	1395.
7600/132 16/1.2/8XCD	1795.
8500/120 16/2G/4XCD	1595.
8500/132 16/1G/4XCD	1695.
8500/150 16/2G/8XCD	1995.
8500/180 32/2GIG/8XCD	2695.
9500/120 16/1G/4XCD	2095.
9500/132 16/2G/4XCD	2095.
9500/150 16/2G/4XCD	2795.
9500/180MP 32/2G/8XCD	4295.
9500/200 32/2GIG/8XCD	3345.

W.G. SERVER'S

6150/66 16/1.2/CD	\$ CALL
9150/120 16/2G/CD	\$ CALL
7250/120 16/1.2/CD	\$ 1395.
8550/132 24/2G/CD	\$ CALL
8550/132 24/2G/CD/DT	\$ 2795.
500/132 32/2G/CD	\$ CALL
500/132 32/2G/CD/DAT	\$ CALL
700/150 32/1G/CD	\$ CALL
700/150 48/4G/CD/DAT	\$ CALL

APPLE PARTS

APPLE 4X-CD ROM	\$89.
APPLE 8X-CD ROM	\$229.
9500/8500 LOGIC BOARD	\$895./799.
150/132 604 PROCESSOR	\$849./449.
200/180MHz 604E PROC.	\$1495./895.
1.44 Floppy for Powermac	\$99.
Duo floppy & Adapter	\$249.
Centris Nubus adapter	\$39.
Apple CD installation kit	\$49.

APPLE PARTS

STARMAX 3000/200 32/2.5/8XCD	\$3395.
STARMAX 3000/160 16/1.2/8XCD	\$3095.
STARMAX 4000/200 32/2.5/8XCD	\$2899.
STARMAX 4000/160 16/1.2/8XCD	\$2099.

RADIUS

PRESSVIEW 17SR	\$1845.
PRESSVIEW 21SR	\$3085.
PRESSVIEW 21T/CALLS	\$1895.
MULTIVIEW 21"	\$1595.

PACKAGE DEALS*

7500/100 32/1GIG/CD/20" MULTISCAN/KB	\$ 2479.
8500/120 32/2GIG/CD/20" MULTISCAN/KB	\$2689
8500/150 32/2GIG/CD/20" MULTISCAN/KB	\$3079.
8500/180 32/2GIG/CD/20" MULTISCAN/KB	\$3449.
9500/132 64/2GIG/CD/ATI,20" MULTISCAN	\$2995.
9500/150 64/2GIG/CD/ATI,20" MULTISCAN	\$3495.
9500/200 64/2GIG/CD/ATI,20" MULTISCAN	\$4595.

TRADE IN YOUR:

OLD POWERMAC & POWERBOOK
WE PAY TOP DOLLAR!!!

Infinity Micro

One stop shopping for all your software & hardware needs!

800 • 589 • 1234

TEL 310•470•9426 FAX 310•470•4956

Web Site @ www.infinity-micro.com

MONITORS

Apple 14" Multiscan	\$249.
Apple 15" Multiscan (R)	\$299.
Apple 17" Multiscan	\$695.
Apple 1705/1710	\$485./\$835.
Apple 1710AV Multiscan	\$ 949.
Apple 20" Multiscan	\$1295.
Magnavox 20" Color	\$795.
Radius Intellicolor 20e	\$1195.
SUPERMATCH 21TXL	\$1295.
Sony 100SX/100SF	\$389./\$445.
Sony 200SX/200SF	\$639./749.
Sony 17SE2/20SEH	\$945./1795.
Sony 300SF-20"	\$1585.

PRINTERS

STYLEWRITER 1200	\$149.
STYLEWRITER 1500	\$169.
STYLEWRITER 2200	\$399.
STYLEWRITER 2400	\$199.
STYLEWRITER 2500	\$249.
LASERWRITER 4/600	\$749.
LASERWRITER 12/640	\$1479.
LASERWRITER 12/600	\$2045.
COLOR LASER 12/660PS	\$5395.
EPSON STYLUS COLOR II	\$295.
EPSON STYLUS Color IISI	\$195.
EPSON STYLUS PRO	\$375.
EPSON STYLUS PRO-XL	\$1645.
POST SCRIPT OPTION	\$249.

SOFTWARE

ADOBE PHOTOSHOP 3.01	\$ 199.
ADOBE PHOTOSHOP 3.05	\$ 399.
ADOBE ILLUSTRATOR 4.0	\$ 299.
ADOBE AFTER EFFECTS	\$1245.
QUARK XPRESS	\$ 649.
MICROSOFT OFFICE	\$ 395.
Teleport 24/96 modem	\$19.
Teleport Platinum 33.6	\$169.
Teleport Speaker/voice	\$259.
Powerport Platinum	\$269.
Powerport Platinum Pro	\$429.
Supra 33.6 fax modem	\$149.
Supra 33.6 fax/voice	\$289.

LEASING SPECIALIST!!!

AT&T 24 Hour quick turnaround!!!

Over 2700 products to choose from!

Call for latest prices. 6320/6400/6214/5212/575

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

UMAX radius RASTEROPS

Apple GMSF

Largest & Most Complete Mail order Source!

2289 Westwood Blvd. Los Angeles, CA. 90064

VIDEO CARDS

Precision Color 24/1600	\$499.
Thunder30-1600	\$995.
Thunder Color/30-1152	\$1495.
Thunder Color/30-1600	\$1695.
Thunder Power/30-1920	\$1645.
TrueVision Bravo 1000	\$ 599.
TrueVision Targa 1000	\$1795.
TrueVision Targa 2000N	\$2195.
TrueVision Targa 2000PRO	\$3195.
Number 9 Imagine 128/8MB	\$1095.
IMS Twin Turbo 8MB PCI	\$689.
ATI Xclaim-GA 4Mb card	\$389.

MEMORY PRODUCTS

PowerMac 8MB \$89.	PowerBook 8MB \$129.
16MB \$139.	16MB \$179.
32MB \$229.	32MB \$295.
64MB \$375.	48MB \$395.

Umax/Supernac

S900 604E 180MHz/32/2.1/KB	\$4195.
S900 604E 225MHz/32/2.1/8xCD	\$3985.
S900 604E 200MHz/32/2.1/KB	\$3495.
S900 604E 180MHz/32/2.1HD/KB	\$3295.
S900 604E 150MHz 16/2G/8Vram	\$3249.
S700 604/150MHz, 16/1.2/6pci/KB	\$2595.
S700 604E 180MHz/24/2.1/IMS 2mb	\$2885.
C600 603E 240MHz/24/2.16.28.8MDM	\$2175.
C600 603E 200MHz/16/2.1/8xCD/28.8	\$1895.
C600 603E 180MHz/16/1.2/8xCD/28.8	\$1745.
C500603E 160MHz/16/1.2/8xCD/KBS	\$1395.

GE 3 YEAR ON-SITE WARRANTY

\$ 701 To \$ 1200 \$1201 To \$ 2000 \$2001 To \$ 3000 \$3001 To \$ 4000 \$ 4001 To \$ 5000

\$ 135.95 165.95 189.95 \$ 219.95 \$ 249.95

ViewSonic SUPER SALE

DAYSTAR

GENESIS MP 528 \$8195.

GENESIS MP 600 \$9995.

100MHz PowerPro 601 \$1995.

NEWER TECHNOLOGY

200MHz Processor card \$ 1095.

TRADE IN YOUR:

OLD POWERMAC & POWERBOOK

WE PAY TOP DOLLAR!!!

MAGNAVOX 20"

MULTISCAN COLOR

\$ 795.

MAC & PC

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Call for upgrades not listed

Macworld SHOPPER

Systems & Peripherals

A.M.S.

The Professional Solutions
"www.advmacc.com"
800-847-4622

Power MAC & CLONES

9500/200 32/2Gb/Cd	\$3795
9500/180MP 32/2Gb/Cd	\$4759
8500/180 32/2Gb/Cd	\$2995
S900L/225 32/2Gb/Cd	\$3945
S900L/200 32/2Gb/Cd	\$3485
S900L/180DP 32/2Gb/Cd ...	\$4255
M3000/200 32/2Gb/Cd	\$2185
M4000/160 32/2Gb/Cd	\$2485
M4000/200 32/2Gb/Cd	\$2885

PowerBook 1400 Series

1400cs 117MHz --12/750MB....	\$2325
1400cs 117MHz --16/750CD....	\$2745
1400c 117MHz --16/1GB/CD....	\$3325
1400c 133MHz --16/1GB/CD....	\$3855

MONITORS

NEC XE21	\$1689	LW 16/600 PS	\$2079
Sony 2001 17"	\$ 729	LW 12/640 PS	\$1459
Sony 2005 17"	\$ 639	LW 4/600PS200	\$ 739
VS. P815 21"	\$1769	HP LJ 4MV 11x17	\$2655
VS. PT770 17"	\$ 839	GCC Elite XL 808	\$2775
VS. P810 21"	\$1589		

Printers

JAZZ 1GB \$444

AGFA Arcus II ... \$1699

Prices are subject to change without notice.
Business Leasing TEL: (310) 314-7372
Available FAX: (310) 314-7512
"E-Mail ams@advmacc.com"

CIRCLE 470 ON READER SERVICE CARD

MacGlobal

SYSTEMS AND PERIPHERALS • SALES AND SERVICE

Performas

410/466/476 Call	160/165/170/180 Call
550 5/160 \$799	150 4/240 \$550
580 5/500/CD \$800	520 4/240 \$750
631 8/500/CD \$650	520C 4/240 \$1,100
6116 8/700/CD \$850	540C 4/320 \$1,750
5200 8/500/CD \$1175	

PowerBooks

630 8/250 Call	650/800/840/950 Call
7200 8/500 Call	
7500 16/500 Call	
8500 16/500 Call	

Power Macs

7200 8/500 Call	650/800/840/950 Call
7500 16/500 Call	
8500 16/500 Call	

Memory

4 MB 72-pin \$40	Laser 300 \$285
8 MB 72-pin \$75	Laser 320 \$490
16 MB 72-pin \$115	Laser 4/600 Call

Printers

Stylw II \$185.00	Stylw 1200 \$175
Laser 300 \$285	Laser 320 \$490
Laser 4/600 Call	

Monitors

14" App. Color+ \$235	15" App. Multi. \$300
17" Radius Trin. \$675	20" GS \$540



**WE REPAIR
MACS!**

**TOP DOLLAR paid for
memory, PowerBooks
and CPUs!**

[800] 722-8864

Phone: [408] 268-3300

Fax: [408] 997-1400

MacGlobal

CIRCLE 479 ON READER SERVICE CARD



"Friends
don't let friends
use 'DOS'!"

... Buy or Sell Any
Macintosh Through Us!

United Computer Exchange

800.755.3033

770.612.1205

Visit Our Online Exchange at www.uce.com



CIRCLE 436 ON READER SERVICE CARD



HAWKE
BUSINESS SYSTEMS
A Division of the CPS Services Group
Flemington, NJ 08822

(800) 875-2610

Fax - (908) 782-7027

Email - MacHawke@AOL.COM

We Buy, Sell, Trade & Repair Mac Equipment

6 Month Parts & Labor Warranty

Mac Se 4/20 w/K&M	- \$199.00	Classic 4/40 w/K&M	- \$299.00
Classic II 4/80 w/K&M	- \$399.00	Mac Se/30 5/80 w/K&M	- \$399.00

PowerBook 140 4/40	- \$449.00	PowerBook 180 12/120	- \$849.00	Duo 230 12/120	- 699.00
--------------------	------------	----------------------	------------	----------------	----------

Color Computing Packages

Mac Lc 4/80	\$349.00	Quadra 610 8/160	\$799.00
Mac IISI 5/80	\$499.00	Quadra 660AV16/500/CD	\$899.00
Mac IICx 8/160	\$599.00	PowerMac 6100/60 16/250	\$999.00
Mac IIVx 8/230	\$599.00	PowerMac 6100/66 16/500	\$1099.00

Packages Listed Above Come with 14" Color Monitors, Extended Keyboard and Mouse
1.4 Meg Floppy Drives (w/t) \$89.00 Se and Se/30 Analog Boards - \$59.00
External 40 and 80 Meg Hard Drive with SCSI Cable - \$99.00 and \$139.00

CIRCLE 457 ON READER SERVICE CARD

1-800-334-KIWI

Kiwi Computers • Save on refurbished Macs

Performas

630 8/500 CD CPU only.....	\$599	6100, 7100 and 8100.....	Call
6116/60 8/700 CD w/15" Multiscan.....	Call	7200/75 8/500 CD.....	\$899
6200 8/1 Gig CD CPU only.....	\$699	7200/90 8/500 CD.....	\$999
6200 8/1 Gig CD w/15" Multiscan.....	\$1049	7200/120 16/1.2 Gig CD.....	\$1149
6220 16/1 Gig CD TV 14.4 w/15" Multiscan.....	\$1149	7500/100 16/1 Gig CD.....	\$1299
5215 8/1 Gig CD built-in 15".....	\$1049	7600/120 16/1.2 Gig CD.....	\$1449
6300 16/1.2 Gig CD 28.8 modem CPU only.....	\$849	7600/132 16/1.2 Gig CD.....	Call
6300 16/1.2 Gig CD 28.8 w/15" Multiscan.....	\$1199	8500/120, 132, 150 and 180.....	Call
6320 16/1.2 Gig CD TV 28.8 w/15" Multiscan.....	\$1299	9500/132 16/2 Gig CD w/ATI.....	\$2249
6360 and 6400.....	Call	9500/150 and 200.....	Call

Power Macs

Upgrades

Performa 630 series to 6300/100mhz.....	\$449	Apple Stylewriter 1200.....	\$125
Performa 630 series to 6320/120mhz.....	\$575	Color Stylewriter 1500 and 2500.....	Call
Performa 630, 6200, 6300 to 6360/160mhz.....	Call	Apple 15" Multiscan Display.....	Call
PowerMac 8100 to 8500.....	Call	GV Platinum 28.8 modem for P5200/6200.....	\$99
7500, 7600, 8500, 9500 upgrade to 200mhz.....	Call	Apple TV/Video card for Performa.....	\$88

Monthly Specials

Visa/Mastercard/American Express No Surcharge.

Refurbished products have a 90 day warranty • Returns subject to a 15% restocking fee • Prices subject to change without notice.

Call Toll Free: 1-800-334-5494

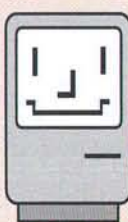
International: 310-553-4507 Fax: 310-286-9667

Hours: Mon-Fri 8am to 6pm, Sat 9am to 2pm • Better Business Bureau Member

Kiwi Computer, P.O. Box 67381, Los Angeles, CA 90067

CIRCLE 404 ON READER SERVICE CARD

USED COMPUTERS



The Computer Exchange

"We match buyers
and sellers of used
MACS nationwide."

Classic to PowerPC

Call for More Info

800-304-4639

404-898-0700 www.compexch.com
205 Armour Dr. NE, Atlanta, GA 30324
CIRCLE 460 ON READER SERVICE CARD

MacBYTE

SAVE ON USED &
DEMO MACS

BUY • SELL • TRADE

New & Used CPU's

TECH SUPPORT:

310.448.4488

FAX 310.448.4494



800-432-2983

Open Monday - Saturday

4223 Glencoe Ave., #C200
Marina del Rey, CA 90292

CIRCLE 428 ON READER SERVICE CARD

PACIFIC

COMPUTER EXCHANGE
Used Macs Priced to Move

Cash paid
for your
Mac via
Fed Ex!

Portable 2x CD-Rom.....	\$79	Color Classic.....	\$599
Personal LW 300.....	\$299	LC/LCII/LCIII.....	\$199/249/299
Image Writer II.....	\$169	IIcx or IIsi.....	\$299
LW IIG.....	\$799	IIcx/IIvx.....	\$389/449
LW IInt/nx.....	\$399/499	Quadra 610/650.....	\$599/749
PB 140/145.....	\$499/549	Centris 660AV.....	\$749
PB 160/165c.....	\$599/899	6100/60 8/250/CD.....	\$899
PB 180/180c.....	\$899/1099	7100/80 8/1Gig/CD.....	\$1199
PB 520/540.....	\$1099/1499	8100/80 48/500/CD.....	\$1499
Plus/SE.....	\$99/189	PB 500 8MB upgrade.....	\$59
Classic/Classic II.....	\$299/399	IIsi/Centris NuBus adapter.....	\$29/39

800.790.3881 ORDERS &
PURCHASING INFO

**We buy and
sell used Macs!**

Many More
Macs &
PowerMacs
in stock!
Please Call!

SPECIAL!
Refurbished
HP
Deskwriter
\$179

CIRCLE 451 ON READER SERVICE CARD



http://www.microoutlet.com
email:sales@microoutlet.com

MICRO OUTLET

800-801-4MAC
FAX: 310-533-0501

MICRO OUTLET

http://www.microoutlet.com
email:sales@microoutlet.com

9500/200MHz



- 32MB RAM
- 2GB HD
- 8X CD

\$3599

Monitor & keyboard sold separately

8500/180MHz



- 32MB RAM
- 2GB HD
- 8X CD

\$2595

Monitor & keyboard sold separately

SyQuest EZ Flyer 230MB



\$285

SyQuest EZ 135MB



\$139

CDR / JAZZ Combo



- 4X CDR Toast
- 1 Jazz Cartridge

\$1289

Global Village Teleport 33.6



\$165

Power Mac

9500/200	32/2GB/8XCD/L2	\$ 3799
9500/200	32/2GB/8XCD/L2*	3599
9500/180	MP 32/2GB/8XCD/L2	4695
9500/150	16/2GB/4XCD/L2	2895
8500/180	32/2GB/8XCD/L2	2595
8500/150	16/2GB/8XCD/L2	2395
8500/150	16/1.2GB/8XCD/L2	2195
8500/150	16/2GB/4XCD/L2	2295
8500/120	16/2GB/4XCD/L2	1749
7600/132	16/2GB/8XCD/L2	1999
7600/132	32/2GB/8XCD/L2	2078
7600/132	16/1.2GB/8XCD/L2	1899
7600/132	32/1.2GB/8XCD/L2	1978
7600/120	16/1.2GB/4XCD/L2	1499
7600/120	32/1.2GB/4XCD/L2	1578
7500/100	16/1.0GB/4XCD	1549
7200/120	16/1.2GB/8XCD/L2	1299
7200/120	16/1.2GB/8XCD/DOS/L2	1849

Workgroup Server

6150/66	16/1.2GB/CD/Int	\$ 1805
7250/120	16/1.2GB/CD	1710
7250/120	16/1.2GB/CD/Int	2120
7250/120	16/1.2GB/CD/As	2500
7250/120	16/2GB/CD/As	2660
8550/132	24/2GB/CD/Int	3990
8550/132	24/2GB/CD/As	4370
8550/132	24/2GB/CD/Dat/As	5275
8550/200	32/2GB/CD/Int	4465
8550/200	32/2GB/CD/As	4845
8550/200	32/2GB/CD/Dat	4940
8550/200	32/2GB/CD/Dat/As	5700
500/132	32/2GB/CD/Dat/Unix	8995
700/150	32/1GB/CD/UNIX	9940
700/150	48/4GB/CD/Dat/Unix	12300

Motorola StarMax

3000/160 mhz	Desk Top	\$ 1599
3000/160 mhz	Mini Tower	1875
3000/200 mhz	Desk Top	1865
3000/200 mhz	Mini Tower	1969
4000/160 mhz	Desk Top	2045
4000/160 mhz	Mini Tower	2315
4000/200 mhz	Desk Top	2330
4000/200 mhz	Mini Tower	2525

Umax Supermac

J700/150	16/2GB/6.7CD/KEY/VCard	\$ 2575
J700/180	24/2GB/6.7CD/KEY/VCard	2849
S900/225	32/2GB/8.0CD/KEY/VCard	3959
S900/200	32/2GB/8.0CD/KEY/VCard	3499
S900/150	32/2GB/8.0CD/KEY/VCard	3159

Powerbook

5300C	16/750	\$ 2525
5300CE	32/1GB	3249
DU02300C	8/750/14.4 Mod	1299
DU02300C	20/750MB/14.4 Mod	1499
DU02300C	20/1.1GB/14.4 Mod	1649
1400C	16/1GB/6XCD	3475
1400CS	16/750MB/6XCD	2849
1400CS	12/750MB	2499

Performa

6360/160	16/1.2GB/8XCD/Kbd/28.8	\$ 1099
6400/180	16/1.2GB/8CD/Kbd/28.8/15"/PRNT	1829
6400/200	16/2.4GB/8XCD/Kbd/28.8	1775
6400/200	16/2.4GB/8XCD/Kbd/28.8/Vid	2195

Keyboard

Apple	Design Keyboard	\$ 75
Apple	Extended Keyboard II	135
Radius	Extended Keyboard	49

Video Card

TrueVision	Targa 2000	\$ 3749
TrueVision	Targa 2000 (Pro)	4299
ATI	Exclaim 2mb Videocard	269
ATI	Exclaim 4mb Videocard	369
IMS	Twin Turbo 4mb V-card	469
IMS	Twin Turbo 8mb V-card	755

Monitor

Apple	Multiscan 14"	\$ 295
Apple	Multiscan 15"	399
Apple	Multiscan 15" AV	459
Apple	Multiscan 1705	649
Apple	Multiscan 1710	799
Apple	Multiscan 1710AV	899
Apple	Multiscan 20"	1699
Iiyama	VisionMaster 15"	359
Iiyama	VisionMaster 17"Pro	659
Iiyama	VisionMaster 21"	1399
Iiyama	VisionMaster 21"Pro	1469
Mitsubishi	Diamond Pro 17TX	759
Mitsubishi	Diamond Pro 21TX	1549
NEC	Multisync XV15+	415
NEC	Multisync XV17+	739
NEC	Multisync M700	739
NEC	Multisync XE21	1649
Rasterops	Hitachi S Superscan	729
Rasterops	Hitachi MC 17 Superscan	879
Rasterops	Hitachi MC 20 Superscan	1399
Rasterops	Hitachi MC 21 Superscan	1779
Radius	All Newer Models	Call
Sony	Multiscan 100SX 15"	385
Sony	Multiscan 200SX 17"	659
Sony	Multiscan 20SF2 20"	1599
Viewsonic	All Newer Models	Call

- Custom Configuration Specialists
- Free Technical Support

- FedEx Fast Delivery
- On Site Warranties Available

- Free CD's With Every System Purchase!

MICRO OUTLET 2785 PACIFIC COAST HIGHWAY #178 TORRANCE, CA • 90505

Due to publication time, the advertising prices may vary. All prices includes cash discounts. Not responsible for typographical errors. Shipping and service fees are non-refundable.

800 • 801 • 4MAC

FAX • 310 • 533 • 0501



http://www.microoutlet.com
email:sales@microoutlet.com

MICRO OUTLET
800-801-4MAC

Supermac S900/240MHz



- 32MB RAM
- 2GB HD
- 8X CD

UMAX®

\$4679

StarMax 4000/200MHz



- 32MB RAM
- 2GB HD
- 8X CD

MOTOROLA

\$2525

PowerBook 1400c/117MHz



- 16MB RAM
- 1GB HD
- 6X CD

\$3379

Iomega Jazz Drive



jaz 1GB

\$429

Iomega Cartridges



\$15

\$89

Syquest Cartridges



\$19

\$65

Printer

Apple	StyleWriter 1500	\$ 199
Apple	StyleWriter 2500	329
Apple	LaserWriter 4/600	729
Apple	LaserWriter 12/640	1445
Apple	LW 12/660PS/Color	Call
Epson	Stylus Color 500	270
Epson	Stylus Color 1500	879
Epson	Stylus Pro XL	1699
HP	DeskJet Series	Call
HP	LaserJet 6MP	899
HP	DeskJet 755cm Plotter	8749

Scanner

AGFA	Arcus II	\$ 1745
AGFA	StudioScan IISI	625
AGFA	StudioStar FV	949
AGFA	StudioStar LE	799
AGFA	SnapScan	325
Epson	Action Scanner II	360
Epson	ES-1000C	550
Epson	Express. 636 Artist	1228
Epson	Express. 636 Prof.	1699
Umax	VistaS6E ProMac	525
Umax	VistaS12 MacDix.	695
Umax	Powerlook II	1869

Removeable Cartridge

Syquest	200MB or 270MB	\$ 65
Syquest EZ	135MB / 230MB	19/25
Iomega	100MB / 1GB	15/89
Nomai	200MB	56

DOS Card

Apple	Pentium 100Mhz	\$ 999
Apple	586 100Mhz	675
Apple	6100 Series w/8MB's	199

Modem

Apple	GeoPort Telecom Kit	\$ 189
Farallon	Netopia (ISDN)	349
Global Village	Teleport 33.6	165
Global Village	PowerPort PC Card	315
Global Village	Platinum Pro PC Card	469
Supra	Express Modem 33.6	119
Supra	Fax Modem 33.6	189
Supra	Sonic Modem 33.6 V.34	265
U.S. Robotics	Sportster 28.8 PC Card	279
U.S. Robotics	Sportster 28.8 w/ Voicemail	194

Removeable External Hard Drive

Iomega	Zip 100 MB & Cartridge	\$ 179
Iomega	Jazz 1 GB Original & Cart.	489
Iomega	Jazz 1 GB Generic & Cart.	429
Syquest	EZ 135 MB & Cartridge	139
Syquest	EZ 230 MB & Cartridge	285

Hard Disk Drive

		Int.	Ext.
IBM	2.1 GB Ultrastar	\$ 329	\$ 389
IBM	4.0 GB Ultrastar	995	1079
Quantum	1.2 GB Fireball	279	339
Quantum	2.1 GB Fireball	335	395
Quantum	3.2 GB Fireball	359	419
Quantum	2.1 GB Atlas	559	619
Quantum	4.3 GB Atlas	875	949
Quantum	4.5 GB Atlas II	1035	1095
Seagate	2.4 GB ST32155N	499	559
Seagate	9.0 GB ST19171N	2249	2379

Magneto-Optical Drive

Fujitsu	230 MB Dynamo Ext.	\$ 489
Fujitsu	640 MB Dynamo Int.	549
Fujitsu	640 MB Dynamo Ext.	699
Olympus	230 MB PowerMo Ext.	485
Olympus	2.6 GB PowerMo Ext.	1799
Pinn. Micro	2.6 GB Vertex Ext.	1499

Memory Special

4MB	30 Pin Simm	\$ 55
16MB	30 Pin Simm	155
4MB	72 Pin Simm	29
8MB	72 Pin Simm	39
16MB	72 Pin Simm	79
32MB	72 Pin Simm	159
8MB	Duo 2300 Simm	79
16MB	Duo 2300 Simm	149
20MB	Duo 2300 Simm	199
36MB	Duo 2300 Simm	349
48MB	Duo 2300 Simm	469
8MB	PB5300/190 Simm	79
16MB	PB5300/190 Simm	144
32MB	PB5300/190 Simm	169
8MB	168 Pin Dimm	45
16MB	168 Pin Dimm	79
32MB	168 Pin Dimm	149
64MB	168 Pin Dimm	289

VRAM

1MB	7200,7500,7600,8500 Series	\$ 35
1MB	6100,7100,8100 Series	79
2MB	ATI VRam Card-9500 Series	159

Cache Card

256K	Performa 6400 Series	\$ 110
256K	L2 Dimm, 7200-8500 Series	49
256K	L2 Dimm, 9500 Series	139
512K	L2 Dimm, 7200-9500 Series	129

Leasing Specialists

- Fast Approval
- Lowest Rates • No Advance Payments
- Tax Deductible
- Business & Personal Leasing Available
- Ask For The Leasing Department

3 Year Extended Warranty



Financial Services

BUSINESS HOURS: MONDAY-FRIDAY 7:00 AM to 7:00 PM PST SATURDAY 10:00 AM to 2:00 PM PST

No sales tax outside of CA. All returns subject to 15% restocking charge. All returns must have an authorization number (R.M.A.) Graphics shown do not necessarily represent actual product.

CIRCLE 472 ON READER SERVICE CARD

800 • 801 • 4MAC
FAX • 310 • 533 • 0501

http://www.microoutlet.com
email:sales@microoutlet.com



You Cannot Miss This Deal!
we beat any price
advertised in this magazine!

PERFORMA 6360

This is a real bargain!
\$999.

APPLE COMPUTERS

9500/200MHz



Unbelievable
PRICE
Unbelievable

FROM: **\$3,399.**

7200 120MHz/16MB/1.2GB/8XCD/1MBVR.....	\$1,449.00
7600 132MHz/16MB/1.2GB/8XCD/ 2MBVR.....	\$1,899.00
8500 180MHz/32MB/2.0GB/8XCD/2MBVR.....	\$2,599.00
9500 150MHz/16MB/2.0GB/CD/.....	\$2,699.00
9500MP 180MHz/32MB/2.0GB/8xCD/.....	\$4,579.00

PERFORMAS



- Power PC 603e
- 180MHz
- 16MB Memory
- 1.6GB HD
- 28.8Bps Mdm
- 8X CD
- Software bundle

\$1,149.

5320 ¹²⁰ 16MB/1.2GB/CD/28.8Mdm/15".....	\$1,549.00
5320 ¹²⁰ 16MB/1.2GB/CD/28.8Mdm/15"TV/Video syst.....	\$1,729.00
6360 ¹⁶⁰ 16MB/1.2GB/CD/28.8Mdm/Software Bundle/15"Mon.....	\$1,369.00
6360 ¹⁶⁰ 16MB/1.2GB/CD/28.8Mdm/TV/Video syst.....	\$1,179.00
6400 ¹⁸⁰ 16MB/1.6GB/8xCD/28.8Mdm/Software/TV/Video syst.....	\$1,329.00

APPLE SERVERS



7250/120MHz

- 16MB/2.0GB/8XCD/256k-L2
- Ethernet AAUI and 10baseT
- More than \$4000 in bundled Software.

\$1,799.

WorkGroup Server Solution

7250 ¹²⁰ MHz/16MB/2.0GB/8xCD.....	\$1,799.00
8550 ¹³² MHz/24MB/2.0GB/CD.....	\$3,999.00
8550 ²⁰⁰ MHz/32MB/2.0GB/8xCD/DAT.....	\$5,799.00

Internet Server Solution

7250 ¹²⁰ MHz/16MB/2.0GB/8xCD.....	\$2,199.00
8550 ¹³² MHz/24MB/2.0GB/8xCD.....	\$4,599.00
8550 ²⁰⁰ MHz/32MB/2.0GB/8xCD.....	\$4,999.00

Apple Share Server Solution

7250 ¹²⁰ MHz/16MB/2.0GB/8xCD.....	\$2,699.00
8550 ¹³² MHz/24MB/2.0GB/8xCD.....	\$5,499.00
8550 ²⁰⁰ MHz/32MB/2.0GB/8xCD/DAT.....	\$6,599.00

Software Bundle Includes: File Wave / Now Contact/Virex Now Up-To-Date /Net Octopus/Viper Instant Access/Skyline/Satellite 4 Sight Fax Server .
*Software Bundle may vary over the life of this product.

MEMORY

16 MB



LOW PRICE \$69.

DIMMS

8Megabytes.....	\$39.00
16Megabytes.....	\$69.00
32 Megabytes.....	\$149.00
64 Megabytes.....	\$279.00

SIMMS

8Megabytes.....	\$39.00
16Megabytes.....	\$69.00
32 Megabytes.....	\$149.00

MONITORS

Apple 15AV *



\$445

Apple

Multiscan 15".....	\$379.00
Multiscan 1705.....	\$649.00
Multiscan 1710.....	\$799.00
Multiscan 1710AV.....	\$949.00
Multiscan 20".....	\$1,779.00

NEC

XV 15".....	\$465.00
XV 17".....	\$779.00
XE 21".....	\$1,749.00
XP 21".....	\$2,149.00

Sony

100SX 15".....	\$409.00
100SX 15".....	\$445.00
200SX 17".....	\$699.00
200SX 17".....	\$759.00
300SX 20".....	\$1,699.00
SE2 20".....	\$1,849.00

SCANNERS

Agfa

SnapScan.....	\$329.00
StudioStar.....	\$799.00
Arcus II.....	\$1,769.00

Apple

Apple Color One.1200/30.....	\$759.00
Apple Color One.....	\$519.00

Microtek

ScanMaker E3.....	\$199.00
ScanMaker E6.....	\$449.00
ScanMaker III.....	\$1,299.00

UMAX

Super Vista S6-E.....	\$269.00
Super Vista S12.....	\$719.00
PowerLook Pro.....	\$1,289.00

*After Manuf. rebate!

PRINTERS

Color Stylewriter 2500

ONLY \$299.

Apple

Color StyleWriter 1500.....	\$229.00
LaserWriter 4/600.....	\$779.00
LaserWriter 12/600.....	\$4,999.00
LaserWriter 12/640.....	\$1,439.00

HP

DeskJet 870CXL.....	\$465.00
DeskJet 870Cse.....	\$489.00
DeskWriter 1600CM.....	\$1,859.00
LaserJet 5MP.....	\$1,019.00
LaserJet 6MP.....	\$929.00

Epson

Stylus Color 500.....	\$269.00
Stylus Color.....	\$379.00
Stylus Color 1500.....	\$939.00
Stylus Color Pro.....	\$399.00
Stylus ColorPro XL.....	\$1,639.00

Tektronix

Phaser 140i.....	\$1,479.00
Phaser 350.....	\$3,299.00

Xerox

XPrint 4915 Color.....	\$4,499.00
------------------------	------------

SOFTWARE

Quark Xpress V3.32



LOW PRICE

\$619.

Adobe Systems

PageMaker.....	\$459.00
Photoshop 4.0.....	\$459.00
Illustrator 6.0.....	\$379.00
Page Mill 2.0.....	\$99.00

Macromedia

Director.....	\$799.00
Free Hand..V7.0.....	\$259.00

STORAGE

Dynatek

2.1 GB Ext. HD.....	\$449.00
4.35 GB Ext. HD.....	\$899.00
9.0 GB Ext. HD.....	\$1,599.00

Fujitsu

4.3 GB Int. HD.....	\$869.00
4.3 GB Ext. HD.....	\$919.00

IBM

2.1 GB Int. HD.....	\$349.00
2.1 GB Ext. HD.....	\$399.00

Quantum

1.2 GB Int. HD.....	\$269.00
1.2 GB Ext. HD.....	\$319.00

Seagate

4.3 GB Int. HD.....	\$799.00
4.3 GB Ext. HD.....	\$859.00

Digital Video



Apple TV/Video System

ONLY \$185.



- 603e Proc.
- 160mhz
- 16MB
- 1.2GB HD
- 8xCD
- 28.8 Mdm
- Keyboard
- Software

MEDIA

IOMEGA ZIP DRIVE

FOR ONLY **\$133.**



*After Manuf. rebate!

Iomega

Drive	Cartridge
-------	-----------

ZIP.....	\$133.00	\$14.00
----------	----------	---------

Syquest/Microtech

Drive	Cartridge
-------	-----------

EZ 135.....	\$109.00	\$19.00
-------------	----------	---------

EZFlyer 230.....	\$259.00	\$23.00
------------------	----------	---------

88 Megabytes.....	\$44.00
-------------------	---------

200 Meg.....	\$339.00	\$59.00
--------------	----------	---------

270 Meg.....	\$219.00	\$46.00
--------------	----------	---------

IOMEGA JAZ

• No Cartridge



ONLY \$359.

JAZ Ext. w/3 Cart.....	\$589.00
------------------------	----------

JAZ Int. w/Brackets.....	\$339.00
--------------------------	----------

JAZ 1GB Cartridge.....	\$89.00
------------------------	---------

*After Manuf. rebate!

PINNACLE

SPECIAL OFFER

RCD 4X4 Recordable CD Drive

FOR ONLY **\$899.**

MODEM

SUPRA 33.6

FOR ONLY **\$119.**



*After Manuf. rebate!

Farallon

Netopia™ ISDN.....	\$299.00
--------------------	----------

Global Village

Telep. Platinum 36.6.....	\$165.00
---------------------------	----------

Telep. Speakeph 33.6.....	\$239.00
---------------------------	----------

Platinum PC Pro.....	\$469.00
----------------------	----------

Hayes

*Accura 288 v.34 (Ext.).....	\$149.00
------------------------------	----------

*Optima 288 (Ext.).....	\$269.00
-------------------------	----------

Supra

SupraSonic™ 33.6.....	\$239.00
-----------------------	----------

Supra.....	\$119.00
------------	----------

Supra Fax M 288 33.6.....	\$179.00
---------------------------	----------

U.S. Robotics

*Sportster 33.6 Fax/M.....	\$165.00
----------------------------	----------

CALL 1-800-404-9976



SCHOOLS and US GOVERN. are WELCOME
Web site under construction!

* ALL PRICES ARE CASH DISCOUNTED! PRICES & PRODUCT AVAILABILITY SUBJECT TO CHANGE WITHOUT NOTICE - Not responsible for typographical errors! FAX:(305) 591-4391

CIRCLE 420 ON READER SERVICE CARD

PERFORMA 6400

603e Processor
180MHz/16/1.6GB/8xCD

\$1179

POWERMACS

9500

200MHz 32/2GB/CD \$2999

200MHz 0/0/CD \$2799

180MHz MP 32/2GB/CD \$3699

150MHz 16/2GB/CD \$2699

150MHz 0/0/CD \$2099

132MHz 16/2GB/CD \$1949

120MHz 16/1GB/CD \$1899



8500 ► 180MHz 32/2GB/CD/604e \$2449

150MHz 16/1GB/CD \$2299

120/132MHz 16/1GB/CD \$1799/1999

7600 ► 132MHz 16/1GB/CD \$1649

120MHz 16/1.2GB/CD \$1599

7200 ► 120MHz 16/1.2GB/CD/L2 Cache \$1199

120MHz 16/1.2GB/CD/DOS Compatible \$1799

CALL FOR DEMO

9500 200MHz 8500 180MHz 7600 132MHz 7200 120MHz

UPGRADES

WITH ORIGINAL APPLE LOGIC BOARD & PARTS

950, 900 to Workgroup Server 9150/120 \$1550

8100s to 8500/120/132/150 \$1300-1550-1880

Quadra 840AV, 800 to

8500/120/132/150 \$1590-2090-2290

120/132MHz 604 Processor (8500 & 9500) to

150 MHz 604 Processor \$395-795

7200/75-90MHz to 7200/120 \$550-450

7200 to 7600/120/132 \$1290-1490

7500 to 7600/120/132 \$395-595

7100 to 7200/120 \$695

630 to 6200/75 - 6300/100 \$495-795

604e 200MHz/Processor Upgrade \$395

Duo 2300 Upgrade Kit \$395

Powerbook 500 Series Processor Card to

PowerPC 100MHz Processor \$479

8100/80, 8150/80 to 8100/100-110 \$890-990

Centris Quadra 610, 660 to 6100 & Q650 to 7100 CALL

QUADRAS

Q840AV 0/0 \$779

Q800 8/0 \$690

Q650 8/0 \$679

SOFTWARE

ADOBE Photoshop v3.0.3 \$459

ADOBE Illustrator v6.0 \$359

ADOBE After Effect LE/Production \$625-1729

MACROMEDIA FreeHand v2.0 \$399

FRACAL DESIGN Painter v4.0 \$349

QUARKXPRESS v3.3.2 \$659

CALL FOR PRICES ON OTHER TITLES

LOWEST PRICES ON

WORKGROUP/NETWORK SERVERS

6150, 7250, 8550, 9550, 500 & 700



INNOVATIVE COMPUTER & NETWORKING INC.

WE CARRY ALL TOSHIBA NOTE BOOKS

POWER MAC 5260

120MHz/16/1GB/8xCD/Built-In 15"

\$1049

MOTOROLA

STAR MAX 3000/200 32/2.5/8X CD/256K \$1979

STAR MAX 3000/160 16/1.2GB/8X CD/256K \$1579

STAR MAX 4000/200 32/2.5/8X CD/512K \$2659

STAR MAX 4000/160 16/1.2GB/8X CD/512K \$2159

CALL FOR PRICES ON OTHER MODELS

UMAX

SUPER MAC S900/225 604E/32/2GB/CD \$3599

SUPER MAC S900/200 604E/32/2.1HD/CD \$3499

SUPER MAC J700/180 24/2.1GB/CD/MS \$2849

SUPER MAC C600/240 24/2.1GB/CD/28.8M \$2179

CALL FOR PRICES ON OTHER MODELS

PRE-OWNED POWERBOOKS

145 8/120/Modem \$429

160 12/160 Modem \$599

165 12/160 Modem \$639

POWERBOOKS

1400cs/117MHz/12750 \$1995

1400cs/117MHz/16750CD \$2690

1400c/117MHz/16750CD \$3399

5300ce 32/1.1GB \$2990

5300ce 8/500 \$2199

Duo2300c/201GB/Mod \$1729

520- 520c Available CALL

540- 540c Available CALL



SCANNERS

AGFA Arcus II Transp/Full Photoshop \$1749

AGFA StudiScan IIst Photo LE \$649

UMAX Vista S6E Full Photoshop \$599

UMAX Vista S12 Full Photoshop \$699

UMAX Powerlook II Transp/Full Photo \$1799

EPSON ES-1200C Pro Full Photo \$1099

EPSON ES-1000C 3200x3200 dpi \$599

NIKON Coolscan 35mm 2700dpi \$1149

ScanMate III 600dpi/36 Bit/Transp/Live Pict \$1379

VISIONEER PaperPort-VX \$299

CALL FOR PRICES ON OTHER MODELS

Prices Subject to Change Without Notice • Call for Latest Prices

All Prices reflect 3% Cash Discount • * : Refurbished

1.800.660.9876

Fax: (310) 445-6611 Tel: (310) 445-6600

FAX TOLL FREE FROM JAPAN: 00-31-114211

2045-B S. Barrington Ave. LA, CA 90025

POWER MAC

8500 180MHz

32/2GB/8xCD/604e Processor

\$2449

APPLE PARTS

Original Apple 8x-CD-ROM \$195

Original Apple 2G Internal HD \$335

9500/8500 Logic Board \$395-799

150/132/120MHz 604 Processors \$399-499-599

200/180MHz 604e Processors \$1595-575

Q840AV Logic Board \$459

Q800 Logic Board \$449

1.44 Floppy Drive \$125

PERFORMAS

Performa 6360

160MHz/1.2GB/8XCD/28.8 Mod/KB \$1049

5260 75/16/1GB/CD/15" Built-in Mon/KB \$1049

6400 180/16/6GB/8X-CD/L2 Cache/28.8 Mod/KB \$1179

6400 200/16/2.4GB/8X-CD/L2 Cache/28.8 Mod/KB \$1649

CALL FOR PRICES ON OTHER MODELS

MONITORS

APPLE 15" Multi \$359

APPLE 15" AV Multi \$469

APPLE 1705 \$629

APPLE 1710 Vision \$799

APPLE 1710AV \$929

APPLE 20" Multi \$1595

NEC XV15+/XV17+ \$469-699

NEC M500/M700 \$479-779

NEC XP17/XP21 \$999-1929

RADIUS PressView 17SR/21SR \$1899-3099

RASTEROPS MC20 20" Color New \$1379

SONY 15 SF2/17 SF2 \$449-769

SONY 17 SE2/20 SE2 \$999-1869

VIEWSONIC 17GA/PT770 \$699-779

VIEWSONIC 20" P810/P8115 \$1549-1699

CALL FOR PRICES ON OTHER MODELS



PRINTERS

APPLE LaserWriter 12/640 \$1399

APPLE LW 4/600 \$339

APPLE Color 12/660 \$5499

APPLE SW 2500 \$349

APPLE SW 1500 \$239

GCC XL608 600dpi/8ppm/11.7x20 \$2099

GCC XL808 800dpi/8ppm/11.7x20/Ethernet \$2799

HP DESKJET 340CM Portable Color \$349

HP LASER JET 6MP \$359

HP DESK JET 870 CXI \$499

HP LASER JET 4MV Prints 11x17 \$2479

HP LASER JET 5M \$1695

HP DESK JET 1600CM \$1799

EPSON STYLUS COLOR PRO XL Wide 720dpi \$1679

EPSON STYLUS COLOR PRO 720dpi \$379

CALL FOR PRICES ON OTHER MODELS



iCN On-Line

<http://www.icni.com>

E-mail: icn@icni.com

DATA

MICRO COMPUTER INC.

800-345-1234

TEL (310) 398-3300
FAX (310) 391-2488

[HTTP://WWW.DATAMICRO.COM](http://www.datamicro.com)

DEALERS & INTERNATIONAL SALES WELCOME!

Govt, Universities & Corp. P.O.'s welcome
Prices subject to change without notice

SPECIAL DEALS

Centris 650 8/500	895
Apple 20" MultiSync	1249
Dos Card 6100 Series	195

POWERMAC	PERFORMAS	POWERBOOKS	PRINTERS & MONITORS
6100/66 8/500CD 895	LC 580 8/500/CD 895	1400C 16/1G/CD 3445	LaseWriter 12/600 4995
6100 Dos 16/500CD 1075	6116 8/700/CD 895	1400CS 16/1G/CD 2885	L.W. 12/640 1495
7100/80 8/700CD CALL	6116 16/500/CD/DOS 1095	1400CS 12/750 2499	L.W. Select 300 475
7200/120 16/1G/CD 1395	5200 8/500 CD/14" 1049	5300CE 32/1Gig 2949	Personal 320 595
7500/100 16/500/CD 1495	5215 16/1GCD/14" 1195	5300C 16/750 2575	Personal 300 395
7600/132 16/1G/CD 1945	5260 16/800CD/14" 1375	5300C 8/500 2175	StyleWriter 2400 249
8100/80 8/250/CD 1495	5320 16/1G/CD/15" 1479	5300CS 16/750 2175	StyleWriter 2500 269
8100/110 16/2G/CD CALL	6200 8/1G/CD 995	5300CS 8/500 1775	Radius 15" GS 199
8500/120 16/1G/CD 1695	6220TV/16/1G/CD 1049	5300 Mono 8/500 1155	Radius Pivot 15" GS 295
8500/132 16/2G/CD 2249	6290 8/1.2/CD CALL	190CS 8/500 Color 1295	Radius Pivot 15" Clr 369
8500/150 16/2G/CD 2275	6300 16/1G/CD 1049	190 8/500 Mono 1280	Radius 21" GS 777
8500/180 32/2G/CD 2695	6360 16/1G/CD 1095	540C 12/320/M 1945	Radius 17" 745
9500/150 16/1G/CD 2795	6400/18016/1.2CD 1195	520C 4/240 1445	Radius Precision 21" 1495
9500/180 32/2G/CD 4740	6400/20016/2GCD 1699	520 4/240 895	Radius Intellicolor 20" 1299
9500/200 32/2G/CD 3595		150 4/240 750	Radius 21 TXL 1595

CIRCLE 464 ON READER SERVICE CARD

voice: 510-689-9488 fax: 510-689-9487

Place Your Orders OnLine!

1-888-447-3728 • MacResQ • www.macresq.com

Toll Free

MONITORS!

PRINTERS!

Mac OS

DESIGN SPEAKERS!

MICE!

PB 2300C!

UPGRADE CARDS!

LW ACCESSORIES!

CD ROM'S!

POWERBOOKS!

MR Mac-Res-Q.

Parts, parts, parts!!

CD 300i+ (tray) NEW! \$49

CD 600i+ (tray) NEW! \$89

mounting kits avail- call for prices!

Manual inject floppies (661-0121)** \$49+

Auto inject floppies (661-0474)** \$79+

Apple ADB II mice -NEW! \$39

120 mhz PM processor upgrade cards \$99!

PB 240 MB 2.5" SCSI hard drive \$249+

MONTHLY SPECIAL !!

Apple LW 12/660 (D) \$3499 (w/ Acc. Kit)

Portables:

PowerBook Duo 230 12/120/14.4 \$499+

PowerBook Duo 250 12/200/14.4 \$649+

Displays:

Apple 13" RGB Display \$199+

Apple 14" Performa Display (.29) \$199+

Power Supplies:**

LC thru Q 605 \$19

PM 7100 \$59

Mac II cx/cil/ Q 700 \$49

Q 800 / PM 8100 \$109

PM 8500 / 9500 \$129

Duo Dock \$69

Q 900 / 950 \$129

APPLE DESIGN SPEAKERS -I'S \$89/ II'S \$59

We Sell & Service the Entire Macintosh Line: Call For Info!

† = Used, 90 Day MacResQ Warranty • * = Refurbished (90 Day Warranty) • All Parts Sold With a 90 Day MacResQ Exchange Warranty • ** = Exch. Required For Orders of 10 or Less • All Major Credit Cards With NO Surcharge.

CIRCLE 437 ON READER SERVICE CARD

2000 TO ORDER CALL 1-888-977-3000

CENTER TOLL FREE Monday thru Friday 8AM to 7PM Sat 10AM to 5PM (Pacific)

FAX YOUR REQUEST TO (310) 664-6455 INTERNATIONAL SALES (310) 664-6454

SCHOOL'S FORTUNE 1000 & GOVT P.O.'S ACCEPTED.

POWER MAC	PERFORMA	POWERBOOK	SCANNER	PRINTER
6100/7100/8100.....CALL	5320/120 16/1GIG/CD.....1199	190 CS 8/500.....CALL	UMAX, HP, AGFA	APPLE, HP, EPSON
7200/120 16/1.2/8XCD.....1249	6360/160 16/1.2/8XCD.....999	1400/117CS 12/750.....2299	MEMORY	H-DISK
7200/120 16/1.2/DOS.....1949	6400/180 16/1.6/8XCD.....1199	1400/117CS 16/750/6X.....2699	Call For Current Prices	
7600/132 16/1.2/8XCD.....1795	6400/200 16/2.4/8XCD.....1799	1400C16/1GIG/6XCD.....3299	LOW BUSINESS LEASING	
8500/150 16/1.2/8XCD.....2149	6400/200VEE 32/2G/CD.CALL	MONITOR, PRINTER	WE WELCOME VISA, M/C, AmEx & DISCOVER.	
8500/180 32/2G/8XCD.....2549	BLOWOUT SPECIAL	APPLE 15/1705.....379/599	Prices shown include 3% cash discount and due to publication time may vary.	
9500/180MP 32/2G/CD.....4599	Performa 6400/180 16/1.6/CD 28.8 Fax, Apple 15" Multiscan StyleWriter 1500 \$1699	1710/1710 AV.....799/899		
9500/200 0/0/8X CD.....2799		SONY 200SX/200SF 649/739		
9500/200 32/2G/8XCD.....3649		StyleWriter 1500/2500..199/299		

CIRCLE 411 ON READER SERVICE CARD

LOWEST PRICES & BEST SERVICE!

FREE! Extended 1 Year Keyboard with purchase of any Complete System

1-800-799-4MAC

TEL: 310-358-9000 • FAX: 310-358-9100

DAILY SPECIALS ON WEB <http://www.compu-age.com>
e-mail Applemagic@aol.com

POWER PCS

7200/75" 8/500/CD	\$795
7200/120" 16/1.2/8X CD/L2	\$1175
7200/120 16/1.2/8X CD/DOS	\$1995
7500/100(r) 16/1GB/CD	\$1195
7600/132 16/1GB/CD	\$1895
8500/120 16/1.2/CD	\$1695
8600 ALL configurations	Lowest
8500/132 16/2GB/CD	\$Call
8500/150 16/1GB/CD	\$2250
8500/180 16/2GB/CD	\$2675
9500 ALL configurations	\$Best
9500/132 16/2GB/CD	\$1990
9500/150 16/1GB/CD	\$2495
9500/200 32/2GB/CD	\$3225

many more coming in everyday

POWER BOOKS

Power Book 3400's Here First

500 series 'In Stk	Call
190 8/500	\$ 999
190CS (n) 8/500	\$1199
5300 series Lowest	Call
5300CE/117 32/1GB	\$2695
2300c 8/750/mod	\$1195
1400cs 12/750	\$2170
1400cs 16/750/CD	\$2545
1400c/117 16/1GB/CD	\$3288
1400c/133 16/1GB/CD/L2	\$3795
All Duos New, used, Ref.	In Stk

We'll beat any verifiable prices!

PERFORMA

LC 580 8/500/CD/14"	\$695
5200" 8/800/CD	Lowest
6116" 8/750/CD	\$695
5300 16/1GB/CD/15"	\$1095
6220" 16/1GB/CD/TV	\$895
6320" 16/1GB/CD	\$995
6360 16/1GB/CD/28/KB	\$1049
6400/180 16/1.6GB/CD	\$1099
6400/200 16/2.6/CD	\$1588
6400/200V 16/2.4/CD	\$1989

AT NO EXTRA CHARGE...

System burn-in & full inspection before we ship any system.

NEXT DAY DELIVERY

Custom configurations avail.

INTERNATIONAL ORDERS WELCOME

Prices subject to change due to publication lead time.

MONITORS

Apple Multiscan" 14"	\$ 245
Apple Multiscan" 15"	295
Apple 1705 - 17"	839
Apple 1710 - 17"	819
Viewsonic 17AV 27dpi	\$ 759
Hitachi Superscan 20"	\$1995
La Cie electron - 21" 28	\$1599
Sony, Hitachi, Viewsonic, Radius Call	

PRINTERS

Stylewriter 1500	\$195
Laserwriter 300/320	\$299/399
Laserwriter 4/600	\$695
Laserwriter 12/640	\$1395
All others	Call

COMPU AGE

The source to Macintosh World

303 S. Robertson Blvd. • Beverly Hills, CA 90211

CIRCLE 542 ON READER SERVICE CARD

Power MACINTOSH

Apple EXT II KeyBrd \$99*

7200/120	16/1.2/CD	1219
7200/120	16/1.2/8xCD	1249
7200/120	16/8/1.2/8DOS	1699
7500/100	16/1GB/CD	1299
7500/100	16/1GB/CD	1399
7600/120	16/1.2/CD	1549
7600/132	16/1.2/8XCD	1679
8500/120	16/1GB/CD	1609
8500/120	16/2GB/CD	1699
8500/132	16/1GB/CD	1999
8500/150	16/1.2/8XCD	2079
8500/180	32/2GB/CD	2499
9500/132	16/2GB/CD	2289
9500/150	16/2GB/CD	2599
9500/200	32/2GB/CD	2929
9500/180MP	32/2GB/CD	3629

PERFORMA

5200CD	8/700/CD/15"	1059*
6220CD	16/1GB/CD/KB	999*
5320/120	16/1GB/CD/15"	1399
6200CD	8/1GB/CD/KB	899*
6205CD	8/1GB/CD/KB	929*
6116CD	8/700/CD/KB	799*
6360CD	16/1.2/8XCD	1089
6400/180	16/1.6/8XCD	1099
6400/200	16/2.4/8XCD	1599
6400/200	VIDEO Edit	2139

MAC TO GO

ORDER NOW AND SAVE
1-800-946-6221

Customer Service: 310.444.1122 Facsimile: 310.444.1130

Performa 6116CD	8/700/CD/KB/Ref	\$799*
TELEPORT PLATINUM		\$33.6
APPLE 15"	Refurb	\$319*
PwrMac 7600/120	16/1GB/CD	\$1549
PwrMac 8500/120	16/2GB/CD	\$1699
WrkGrp 9150/120	16/2GB/CD/New	\$1699
UMAX S900/200	32/2GB/CD/IMS8	\$3439
UMAX S900/225	32/2GB/CD/IMS8	\$3879
Performa 6400/200		\$1599

SONY

100SX/100SF	379/448
200SX/200S	639/739
217SE2/300SF	939/1589
20SE2T/2000CT	1829/3099
GDM-T900W 24"	4199

EPSON

ES-1000C	539
Expression 636 Exec	825
Expression 636 Prof	1739
Stylus Color Pro XL	1649

AGFA

Arcus II StudioScan IIsi 1729 CALL

NEC

XV 15+/M500	469/479
XV 17+/M700	779/739
XE 17/XP 17	989/1039
XE 21/XP 21	1679/1939

Apple Monitors

MS 14" Ref/14"	259*/289
MS 15" Ref/15"	319*/389
MS 1705/1710	619/739
MS 15AV/1710AV	419/849
MS 20"	1679

HEWLETT PACKARD

DeskWrt 680C	289
DeskJet 870CXi	469
DeskJet 340 MAC	318
DeskJet 1600CM	1889
LaserJet 6MP	859
LaserJet 4MV	2669
LaserJet 5M New!	1689
Color LaserJet 5M	6945
LaserJet 5SI MX	3729
ScanJet 4C Mac	809

POWERBOOK

1400CS 12/750	2349
1400CS 16/750/CD	2789
1400C 16/1GB/CD	3319
5300CS 16/750	2249
5300C 8/500	2299
5300CE 32/1.1	3399
2300C 8/750	1419
2300C 20/1.1/MDM	1789
DUO DOCK II+	479

WorkGroup Servers

ALL NEW WrkGrp Servers Avail

6150/66	16/1.2/INTRNT	1499
9150/120	16/2GB/CD	1799
7250/120	16/2GB/CD	1629
7250/120	16/2GB/INTRNT	1989
7250/120	16/2GB/CD/AS	2329
8550/132	24/2GB/INTRNT	3869
8550/200	32/2GB/INTRNT	3799
8550/200	32/2GB/8XCD/AS	4299
8550/200	32/2GB/8XCD/DAT	4399
8550/200	32/2GB/AS/DAT	4845
500/132	32/CD/BASE	6979
500/132	32/2GB/DAT/CD	7689
700/150	32/1GB/CD	7379
700/150	48/4GB/DAT/CD	9339
700/200	48/2-4GB/CD	10789

Apple Printers

StylWrt 1500/2500	249/339
StylWrt 2400	199*
LsrWrt 12/640Ps (New)	1299
LsrWrt 16/600Ps	2058
LsrWrt 12/660Ps w/Kit	5289

Gov't, Schools, Fortune 500 P.O.'s Welcome. *** is Refurb Prod. Prices change w/o notice. Prices are Cash Discounted for CDB Cash/Cashier Check.

ViewSonic

GT770	689
PT770	789
P810	1589
P815	1909

WACOM

4x5	128
6x8	297
12x12	415
12x18	683

Global Village

P1tm 33.6	159
P1tm 33.6	159
P1tm PC 309	259
P1tm Pro 419	

Apple Newton

130	639
2/4 MB/79/166	
ToolKit	259
Keybrd	87

UMAX

C500/160	1289
C600/180 / 200	1689/1879
C600 603E/240	2149
S900 604E/180	3279
S900 604E/200	3439
S900 604E/225	3879
S900 604E/180DP	4199

MICROTEK

SenMkr E3299	
SenMkr E6347	
SenMkr 31399	

i-MEGA

ZIP 100	139
JAZ 1GB	459
After Mfg Rebate	

* USED / * REFURBISHED *

Desktop CPU's

Mac Plus No Kbd or Mouse	\$99.00
Mac SE (800K) 2/80	\$199.00
Mac II 4/40	\$129.00
Mac II CX 4/80	\$179.00
Mac IIX 4/80	\$179.00
Mac IIFX 4/80	\$249.00
Mac LC 4/40	\$169.00
Mac IISI 5/80	\$229.00
Mac IIVX 5/80/CD	\$449.00
Mac Portable 1/40	\$249.00
LC 630 8/500/CD/DOS	\$899.00
Performa 600 5/80/CD	\$449.00

Monitors

Apple 13" RGB Display	\$225.00
Apple 14" Color Display	\$299.00
Apple 14" MultiScan	\$225.00
Apple 14" AV Display	\$325.00
Apple 1710 AV Display	\$679.00

Mac S.A.L.E INTERNATIONAL

* USED SYSTEM SPECIALS *



Mac II cx 4/80
Complete Color System
W/Apple Color Monitor & Kbd.
\$375.00



PowerBook 160 4/120
68030 25MHz, Gray Scale
\$499.00



PowerBook 165 4/160
68030 33MHz, Gray Scale
\$579.00

Add Ram & 14.4 Modem
From Only \$100.00

* USED / * REFURBISHED *

PowerBooks

PB 140	4/40	\$379.00
PB 145	4/80	\$429.00
PB 165C	4/80	\$899.00
PB 170	4/80	\$529.00
PB 180	4/80	\$699.00
Duo 210	4/80	\$349.00
Duo 230	4/80	\$399.00
Duo Dock		\$249.00
Duo Dock II		\$379.00
PB/Duo Battery Recharger		\$35.00
PB Int. Fax/Data Mdm		\$25.00

Printers

Laser Select 300	\$299.00
LaserWriter IINT	\$499.00

Accessories

Mac IISI NuBus Adapter	\$39.00
Apple Ext. 1.4MB Floppy	\$85.00
Apple Ext. II Keyboard	\$75.00

* USED *

Color StyleWriter 2200/2400
\$159.00

This is only a small sampling of our inventory. Please call for any equipment not listed

* NEW *

Apple CD-300i Plus
2X Speed Tray Loading Int. CD-Rom Drive
ONLY - \$59.00

Personal LaserWriter
NTR Logic Board
With Trade-In, **ONLY \$79.00**

1150 W. Alameda Dr. Suite 1 & 2
Tempe, AZ 85282
(602)858-0900 / www.getnet.com/macsale

1-800-729-7031

CIRCLE 401 ON READER SERVICE CARD

WE WANT TO BUY YOUR NEW/USED MAC EQUIPMENT

CIRCLE 401 ON READER SERVICE CARD

8500/180 16/2G/8XCD ON SALE!

\$2599

- PPC 604 AT 180MHZ
- VIDEO IN & OUT
- AVID VIDEO SHOP
- 256K CACHE
- 3 PCI SLOTS
- TOWER CASE

8500/120 16/1.2G/4XCD ON SALE!

\$1599

- PPC 604 AT 120MHZ
- VIDEO IN
- AVID VIDEO SHOP
- 256K CACHE
- 3 PCI SLOTS
- DESKTOP CASE

COMPU AMERICA

"The Computer Specialist"

1800-533-9005

HTTP://WWW.COMPU-AMERICA.COM

(310) 446-1771

FAX Bids

(310) 475-7744

10435 Santa

Monica Blvd

LA, CA 90025

EMAIL: CompAmer@artnet.net

Come and see our HUGE showroom! We ship WORLDWIDE!

We accept Government, Fortune 1000, and University P.O.'s.

PERFORMA 6400 16/1.6G/8XCD 2 PCI SLOTS!

\$1089

- 180MHz CPU
- Software Bundle
- 101 Keyboard
- INTERNET INCLD
- 28.8 FAX/MDM
- Perfect for Home.

DUO 2300C 8/750 \$1199 20/1.2G/14.4 \$1599

**PRICE
WAR!!!**

- 100MHz CPU
- 14.4 FAX/MDM
- LightWeight
- Champ
- Active Matrix Color Screen



PowerComputing

WE CARRY THE WHOLE LINE
OF POWERCOMPUTING UNITS!
WE BUILD THE PERFECT SYSTEMS!



PowerComputing

PowerCenter 180MT

180MHz 604 Mini Tower
16/2G/8XCD/2MB VRAM
512k CACHE, KEYBOARD

\$2795 CALL FOR OUR
BUNDLE PRICE!

PowerCenter 604/150

150MHz 604 Low Profile
16/2G/8XCD/1MB VRAM
512k CACHE, KEYBOARD

\$2149 CALL FOR OUR
BUNDLE PRICE!

PowerBase 603e/180

180MHz 603e Desktop
16/1G/8XCD/SoftWare
256k CACHE, KEYBOARD

\$1495 CALL FOR OUR
BUNDLE PRICE!

POWERMAC

7200/75	8/500/4XCD	899*
7200/90	8/500/4XCD	999*
7200/120	16/1.2G/8XCD	1199
7200/120	16/1.2G/8XCD/PEN	1899
7500/100	16/1G/4XCD	1399/1199*
7600/120	16/1.2G/4XCD	1549/1399*
7600/132	16/1.2G/8XCD	1799/1599*
8500/120	16/1G/4XCD	1599
8500/120	16/2G/4XCD	1699
8500/132	16/1.2G/4XCD	1899
8500/150	16/1.2G/8XCD	2179
8500/150	16/2G/8XCD	2299
8500/180	32/2G/8XCD	2579
9500/120	16/1G/4XCD	CALL
9500/132	16/2G/4XCD/N	2299
9500/132	16/2G/4XCD	2099
9500/150	16/2G/4XCD/VID	2599
9500/200	16/2G/8XCD	3299
9500/180MP	32/2G/8XCD	4199
6100/66	16/500/4XCD/DOS	899*
8100/100	8/700	1599*
8100/110	16/2G/4XCD	1999*
WG57250/120	16/1.2G/SHARE	2495
WG58550/132	24/2G/6/4T	2495
WG58550/200	32/2G/6/4T/INT	4095
WG58550/200	32/2G/6/4T/SHA	4495
WG59150/120	16/1G/4	2195

MOTOROLA

RISC PC PLUS DTP603E/100	CALL
POWERSTACK DT-603/66	CALL
POWERSTACK MT-604/133	CALL
POWERSTACK II PRO 3000 200MHz	CALL

GCC

GCC ELITE XL 808	2599
GCC ELITE XL 616	2349
GCC ELITE XL 608	2099
GCC ELITE XL 1208	3899

MICROTEK

ScanMaker E3	299
ScanMaker E6	547
ScanMaker E6 Pro	829
ScanMaker III	1399

POWERBOOKS

1400C/133	16/1G/CD	CALL
1400C/117	16/1G/CD	3199
1400CS/117	16/750/CD	2599
1400CS/117	12/750	2199
5300CE/117	32/1G/6	2699/2499*
5300C/100	8/500	1895/1695*
5300CS/100	16/750	1895/1695*
5300CS/100	8/500	1595/1495*
5300/100	8/500	1199/1099*
190CS/66	8/500	CALL
190/66	8/500	899
DUO 2300C	20/1.2G/14.4	1599
DUO 2300C	8/750/14.4	1199
DUO 280C	4/320	799
150	8/250	749

Apple Printers

SW 1200/2400	129*/169*
SW 2200	349
SW 1500	199/149*
SW 2500	279/199*
Apple Personal Laser 320	499
Apple LaserWriter Select 360	999*
Apple LaserWriter 4/600PS	749/649*
Apple LaserWriter 12/640/PS	1399
Apple LaserWriter 12/600PSC	4499*
Apple LaserWriter 12/600PSC	5499
Apple LaserWriter 16/600PS	2099

VIEWSONIC

VIEWSONIC 15GA/15ES	439/379
VIEWSONIC 17GA/17EA	679/529
VIEWSONIC 17GS	639
VIEWSONIC GT770	689
VIEWSONIC PT770	789
VIEWSONIC GT800	1299
VIEWSONIC PT810	1699
VIEWSONIC P810	1549
VIEWSONIC P815	1699
VIEWSONIC G810	1499

GRAPHICS CARD

MTS TWIN TURBO 4MB & 8MB	449/749
ATI GRAPHIX ULTRA VR 2MB/4MB	259/349
RADIUS THUNDER 30/1600	679

PERFORMAS

6400/200V	16/2.4G/8XCD	1999
6400/200	16/2.4G/8XCD	1599
6400/180	16/1G/4XCD	1089
6320/120	16/1G/4XCD	949
6300/100	16/1.2G/4XCD	899*
6360/160	16/1.2G/8XCD	999
6290/100	8/1.2G/4XCD	899*
6220/75	16/1G/4XCD/TV	799*
6200/75	8/1G/4XCD	699*
6116/66	8/700/4XCD	699*
6400DS	12/500/4XCD/DOS	699*
5320/120	16/1.2/4XCD/15"	1299
5260/100	16/800/4XCD	1199
5200/75	8/800/4XCD	1099*/999*
631/66	8/500/2XCD	599*

APPLE Monitors

Apple Mx 14"	299/249*
Apple Mx 15"	349/299*
Apple 1705 17"	649/499*
Apple 1710 17"	799/699*
Apple 1710AV	899/799*
Apple Multiscan 20"	1699/1199*

SONY Monitors

Sony 100SF/100SX	479/399
Sony 200SF/200SX	769/689
Sony 300SF	1599

NEC Monitors

NEC 15XV+	489
NEC 17XV+	679/599*
NEC CS00 15"	429
NEC C400 14"	329
NEC M500 15"	469
NEC M700 17"	779
NEC 17XE/17XP	999/1049
NEC 21XE/21XP	1699
NEC P1150	2099

MODEMS

Global Village Plat 33.6	169
Global Village Gold II 14.4	79
Global Village 28.8 PCMCIA	299
US Robotics X2 56.6	219

HewlettPackard

5M color	10ppm color Laser	6999
5SIMX	24PPM LASER	3799
5M	12ppm 600dpi laser	1779
6MP	PS 600DPI Laser	899
4MV	11x17 Laser	2299
DeskWriter 680c	INKJET	299
Deskjet	870CXL INKJET	499

EPSON

EPSON	STYLUS PRO 500	329
EPSON	STYLUS COLOR PRO	499
EPSON	STYLUS COLOR PRO XL	1649
EPSON	EXPRESSION/636/EXEC	829
EPSON	EXPRESSION/636/ART	1259
EPSON	EXPRESSION/636/PRO	1729

RADIUS

PRESSVIEW 21SR 21"	3099
SUPERMATH 21TXL	1199*
PRECISION VIEW 21"	2249
RADIUS 15" COLOR PIVOT	399*

UMAX

VISTA S6E Photo Shop LE	299
VISTA S6 FULL PHOTO	479
VISTA S12 PHOTOSHOP LE	579
VISTA S12 MAC PRO II	599
POWERLOOK II	1799
GEMINI D-16 FULL PHOTO	1099
POWERLOOK 2000	4499

UMAX

COMPUTERS

C500/160MHZ	1279
C600/180MHZ	1679
C600/200MHZ	1849
C600/240MHZ	2149
J700/150MHZ	2529
S900/180MHZ	3269
S900/200MHZ	3379
S900/225MHZ	3849
S900/180DP	4099

IN STOCK NOW! IN STOCK NOW!

All prices are subject to change without notice. All prices are cash discounted. An Asterisk "*" reflect refurbished.

CIRCLE 467 ON READER SERVICE CARD

CALL THE MAC EXPERTS!

Providing complete Macintosh solutions for graphics, pre-press, and video professionals



New Low Prices!

MacUser Labs Says:

"Four Mice! A PowerMax Power Play" "Not only do the PowerMax monitors display good-looking images, but (they) are affordably priced!" and "Nice price, nice image quality, nice controls - nice monitor!"

PowerMax Trinitron™ monitors are designed specifically for the rigorous demands of the Macintosh. They ship complete with Mac-ready cables and adapters, a three year warranty, and our satisfaction guarantee: if the monitor is not just right, we'll replace it for you!

PowerMax Trinitron™ Monitors

Model PM14T 25 mm dot pitch- up to 1024x768	\$309
Model PM15T 25 mm dot pitch- up to 1280x1024	\$399
Model PM17T 25 mm dot pitch- up to 1280x1024	\$699
Model PM17TE+ 25 mm dot pitch- up to 1600x1280	\$899
Model PM20T 30 mm dot pitch- up to 1600x1280	\$1599
Model PM20T+ W/ 25 mm dot pitch!	\$1799

We're Wacom Experts!

ArtPad II 4x5 w/erasing Ultra Pen	\$139
ArtPad II 4x5 w/erasing Ultra Pen w/Dabber	\$159
ArtZ II 6x8 w/erasing Ultra Pen	\$309
ArtZ II 6x8 w/erasing Ultra Pen & Painter 4	\$579
ArtZ II 12x12 w/erasing Ultra Pen	\$439
ArtZ II 12x12 w/erasing Ultra Pen & Painter 4	\$689
ArtZ II 12x18 w/erasing Ultra Pen	\$699

We carry all Wacom Accessories, Pens and Tablets! You won't find anyone who knows more about Wacom!

Perfect Printers at Perfect Prices!

Apple StyleWriter 1200- special ref. package!	\$139
Apple Color StyleWriter 2400- special ref. package!	\$189
Apple Color StyleWriter 2500- special ref. package!	\$249
Canon 11x17 Color Bubble Jet	\$499
Apple LaserWriter 4/600 w/toner	\$749
GCC Elite 600 10PPM 600 dpi w/4 Mb ram	\$1428
Epson Stylus Color Pro 11x17 Inkjet	\$1899
GCC Elite XL 608 11x17 800/600 dpi w/6 Mb ram	\$2348
Kodak XLS8650 Color Dye Sublimation Printers	\$Call!

Need a scanner? We stock: Apple • Agfa • Epson • Hewlett Packard • Microtek • Nikon • Linotype Hell • Polaroid • Umax
Call one of our PowerMax scanner experts about your specific needs. We can recommend one that's just right for you: all the latest models at the nation's best prices!

As low as **\$299!**

POWER MAX

Knowledge is Power

Save hundreds of dollars on these specially priced bundles! Or call for your own custom configuration, usually with same day delivery!

Professional Graphic Production Station

PowerMac 8500/180 with 80 Mb Ram, 2 gig drive, internal 8x CD-rom, ext. keyboard, 17" PowerMax Trinitron monitor, Zip drive, Adobe Illustrator, Quark Xpress, Quark & Illustrator Training CDs, Umax Vista S-12 scanner and Adobe Photoshop. Only **\$5999**, or just **\$224 per month!**



PowerComputing Publishing Package

PowerComputing 604/150 with 32 Mb Ram, 1 gig drive, 8x CD-rom, keyboard, 4 Mb Vram, internal Zip drive, 17" PowerMax Trinitron monitor, Quark Xpress, Xpress Training CD. Only **\$4099** or just **\$165 per month!**



PowerMax External Hard Drives

800 Meg External Only	\$269!
PowerMax External One Gig Drive	\$329
PowerMax External 2.0 Gig Drive	\$419
PowerMax External 4.0 Gig Drive	\$949
PowerMax External 9.0 Gig 7200 RPM Tomahawk	\$2099

We specialize in complete arrays!

•Atto •Micronet
•FWB •Optima

Need software? Don't call an order taker! Our experts will consult with you for the best deal and at the nation's best prices!

Why Buy From PowerMax?

- Over 90% of our orders ship within 24 hours. We stock every major brand of Mac product from Abacus to Zoom!
- We speak plain English- no technobabble or high pressure sales tactics!
- We offer flexible terms, and are experts on easy leasing!
- We consult with you, we want to make sure what you buy is what you need.
- Unlike most catalog outlets who try to keep prices low by limiting service options- we are a dealer who actually offers more expertise and service than most local full-priced dealers! We keep prices low through aggressive purchases, high volume and years of experience!
- All we ask is that you call a couple of the other guys first- then call us. You'll really appreciate our difference! We stock all the lines below!

• Adobe • Agfa • Atto • Canon • DayStar • Epson • Fargo • GCC • Global Village • Hewlett Packard • Iomega • Kingston • Kodak • LaCie • Mag • Magnavox • Microtek • Mitsubishi • Motorola • NEC • Nikon • Optima • PowerComputing • QMS • Quantum • Radius • Samsung • Seagate • Seiko • StreamLogic • Sony • SyQuest • Tektronix • TrueVision • Umax • US Robotics • Visioneer • Xerox

Receive FREE with every CPU:

Canvas 3.5, Comptons Encyclopedia CD, Netscape Navigator, and one month free internet access!

WHILE SUPPLIES LAST!

No one stocks more and knows more about Apple New, Apple Vintage, Apple Refurbished & all Compatibles!

Performa 6116 Ref 8/700/4x CD	\$799
Performa 6200 Ref 8/Gig/4x CD/Modem	\$899
Performa 6300 Ref 16/1.2/4x CD	\$949
Performa 5200 Ref 16/1.2/4x CD/15"	\$999
All-in-one 5260 16/800/CD	\$1149
Performa 6360 160 16/1.2/8x CD	\$1088
Performa 6400/180 16/1.6 Gig/8x CD	\$1299
Performa 6400/200 16/2.4 Gig/8x CD	\$1839
Performa 6400/200 Video Editing System	\$Call!
PowerMac 7200/120 16 Ram/1.2 Gig/4x CD	\$1299
PowerMac 7200/120 16 Ram/1.2 Gig/8x CD	\$1399
PowerMac 7200/120 16/1.2 w/Pentium/8x CD	\$Call!
PowerMac 5200/100 16 Ram/500/4x CD	\$1499
PowerMac 7600/120 16 Ram/4x CD	\$1499
PowerMac 7600/132 16 Ram/8x CD	\$1749
PowerMac 8500/120 Blowout!	\$Call!
PowerMac 8500/150 16 Ram/8x CD	\$2188
PowerMac 8500/180 32 Ram/8x CD	\$2599
PowerMac 9500/200 32 Ram/8x CD	\$3199
PowerMac 9500/180MP 32/2000/8x CD	\$Call!
Powerbook 1400CS 12/750	\$2477
Powerbook 1400CS 16/750/CD	\$2949
Powerbook 1400C 16/Gig/CD	\$3499
Powerbook Duo 2300C 8/750 Active Matrix	\$Call!

Motorola Starmax Compatibles
Complete 603e-based systems, starting at \$1499
Complete 604e-based systems, starting at \$2149

Power Computing
PowerComputing Power 100 3 Nubus 8/Gig/CD...\$1099
We stock the complete PowerComputing line!...\$Call!

Umax SuperMac Compatibles	
SuperMac C500 L160 16/1.2/CD/28.8 Modem	\$1299
SuperMac C600 L180 16/1.2/CD/28.8 Modem	\$1729
SuperMac C600 L200 16/2 Gig/CD/28.8 Modem	\$1919
SuperMac C600 L240 16/2 Gig/CD/28.8 Modem	\$2219
SuperMac J700 L150 16/2 Gig/CD	\$2666
SuperMac S900 L180 16/2 Gig/CD	\$3432
SuperMac S900 L200 32/2 Gig/CD	\$3622
SuperMac S900 L225 32/2 Gig/CD	\$4099
SuperMac S900 L180 W/2 604E Processors	In stock!

Overwhelmed? Only PowerMax will give you the straight scoop on the pros and cons of each model and manufacturer!



800-613-2072

Call today for your free PowerMax Catalog!

Local line: (503) 624-1827 • Fax (503) 624-1635

HTTP://WWW.illuminatus.com/Powermax • E-Mail: powermax@europa.com

Prices subject to change without notice. Prices reflect cash discount.

We accept educational and corporate purchase orders, and are experts in financing for virtually any size business!



Parts • Trades • Upgrades

Apple Performa 6300/100

- 100-MHz PowerPC 603e
- 16MB of RAM
- 1.2GB hard drive
- 4X internal CD-ROM
- one PDS slot
- built-in LocalTalk
- 15" Apple Multiscan
- Apple keyboard
- internal 14.4 fax/modem



RECONDITIONED \$1599

Macintosh LC580

- 33-MHz MC68LC040
- 8MB of RAM
- 800MB hard drive
- one PDS slot
- built-in LocalTalk
- 14" built-in trinitron
- AppleDesign keyboard
- external 2X CD-ROM



NEW \$899

We Specialize in Parts!

POWER SUPPLIES

LOGIC BOARDS

FLOPPY DRIVES

RAM SIMMS

Bargain Basement

MACINTOSH SYSTEM 7.5 CD.....	35.
1MB 30-pin 120ms SIMMS.....	12.
New Duo Type 1 Batteries.....	15.
Centris 650 Logic Board.....	299.
PowerBook 140-180 A/C adapter.....	49.
StyleWriter ink cartridges: 2 for.....	29.
Quadra 840AV Logic Board.....	499.
ImageWriter LQ ribbon.....	6.
Quadra 800 Logic Board.....	449.
Ilisi Power Supply.....	79.
PowerBook Canvas Tote Case.....	19.
Quadra 950 Logic Board.....	549.
Quadra 660AV NuBus Adapter.....	49.
Quadra 660AV Logic Board.....	399.
Personal NT Logic Bd.....	49.
Quadra 900 Logic Board.....	449.
Apple PowerCD Carrying Case.....	10.
40MB 1/3-height Hard Drive.....	59.

MAC LOGIC BOARD UPGRADES!

Personal NT to NTR printer upgrade	exchange \$99
LaserWriter II NT/NTX to IIx	exchange \$399 NT/299 NTX
Mac II or IIx to IIcx	exchange \$299
Centris 610 to Quadra 660AV	exchange \$199
Quadra 800 to Quadra 840AV	exchange \$249
IIcx, IIcx/IIci to Centris 650	exchange \$299
Performa 630 to PowerMac 6200	exchange \$499
Performa 630 to PowerMac 6300	exchange \$999

Quadra 950

- 33-MHz 68040 processor
- 8MB of RAM
- 500MB internal hard drive
- 5 expansion slots
- Sixteen SIMM sockets

NEW \$1199



NEW!
800/840AV/8100
POWER SUPPLIES
GENUINE APPLE



Apple Color Printer
Brand New



AppleDesign
Powered Speakers II



Color StyleWriter 2400
factory refurbished



Apple
QuickTake 100

Macintosh CPUs

LC580 8/800 NEW	\$899.
Performa 475 4/0	\$599.
Performa 637 8/250/CD	\$699.
Performa 638 8/350/CD NEW	\$799.
PowerMac 5200/75LC 8/500/CD	\$1299.
PowerMac 6100 8/250/CD	\$749.
PowerMac 6200 8/1GB/CD	\$899.
Performa 6290 8/1.2GB/CD	\$1249.
Centris 650 4/0	\$599.
Quadra 660AV 4/0	\$599.
Quadra 840AV 0/0	\$949.
Quadra 800 8/0	\$899.
Quadra 950 8/500 NEW	\$1199.
PowerMac 7500/100 16/1G/CD NEW	\$1599.
PowerMac 9500/132 16/2GB/CD	\$2499.
WGS 9150/120 16/2GB NEW	\$2799.

★ = FACTORY REFURBISHED

Accessories

660AV NuBus adapter	\$49.
610 NuBus Adapter	\$49.
Ilisi NuBus Adapter	\$79.
Apple OneScanner	\$279.
Apple Color OneScanner 600/27	\$549.
HDI External 1.44 for PowerBooks	\$129.

StyleWriter 1500



\$219

Color StyleWriter Pro

\$99

Trade in your StyleWriter or
StyleWriter II for this great price!
*Working trade-ins only

Video Cards

Diamond Javelin PCI accelerated NEW	\$249.
RasterOps 24MX NEW	\$249.
RasterOps ColorBoard 108	\$199.
E-Machines DoubleColor SX NEW	\$129.
8100 series AV Card	\$349.
7100 series AV Card	\$349.
6100 series AV Card with PDS adapter	\$449.

MONITORS

Apple 14" MultiScan NEW	\$279.
Apple 14" AV NEW	\$349.
Apple 15" MultiScan	\$329.
AppleVision 1710 Display	\$649.
AppleVision 1710AV Display	\$749.
Hewlett-Packard 17"	\$499.
Hewlett-Packard 20"	\$699.
Radius TPD 19" mono	\$399.
Radius TPD 21" mono	\$549.
Radius PrecisionColor 20e	\$1299.
Radius PrecisionColor Pivot	\$549.

★ = FACTORY REFURBISHED

Printers

Apple StyleWriter 1200	\$159.
Apple Personal LaserWriter LS	\$299.
Apple Personal LaserWriter 300	\$299.
Apple Personal LaserWriter NT	\$449.
Apple Personal LaserWriter NTR	\$599.
Apple LaserWriter IIcx	\$699.
Apple LaserWriter II NTX	\$899.
Apple LaserWriter 4/600PS	\$699.
Hewlett-Packard DeskWriter C	\$229.
Hewlett-Packard DeskWriter 550c	\$229.

Laser toner cartridges sold separately

POWERBOOKS

PowerBook 520 4/240 NEW	\$1099.
PowerBook 170 4/80	\$649.
PowerBook 180 4/80	\$999.
PowerBook 160 4/80	\$699.
PowerBook 150 4/120	\$599.
Duo 230 4/80	\$499.
Duo 250 4/250	\$799.
Duo 280 4/250	\$999.

★ = FACTORY REFURBISHED

Best IN Parts!
SHREVE Systems



TO PLACE AN ORDER CALL

1-800-227-3971

1200 Marshall St. • Shreveport LA 71101

ALL CREDIT CARDS STRICTLY VERIFIED



FAX (318) 424.9771 • TECH (318) 424-7987
CUSTOMER SERVICE & ORDER INFO (318) 424.9791
PURCHASING & INFORMATION (318) 424.9791
[HTTP://www.shreve.com](http://www.shreve.com)

Products are refurbished unless indicated as "new". Prices reflect a 2% cash discount and are subject to change without notice. Non-defective returns are subject to a 15% restocking fee.

CIRCLE 417 ON READER SERVICE CARD

MAC LOGIC BOARD UPGRADES

LOOK!



Quadra 800 to PowerMac 8100 Logic Board Upgrade

starting at
\$599
with exchange



Quadra 650 to PowerMac 7100 Logic Board Upgrade

starting at
\$499
with exchange

Apple Performa 5200/75LC

- 75-MHz PowerPC 603e
- 8MB of RAM
- 800MB hard drive
- 4X internal CD-ROM
- one PDS slot
- built-in LocalTalk
- 15" Apple Display
- Apple keyboard
- internal 14.4 faxmodem



RECONDITIONED **\$1399**



Quadra/Performa 630 to Performa 6200 Logic Board Upgrade

starting at
\$499
with exchange



Quadra 660AV to PowerMac 6100 Logic Board Upgrade

starting at
\$399
with exchange

Power Macintosh 7500/100



Brand New!



Only

\$1599

- 16/1GB/CD
- 100-MHz PowerPC™ 601+
- built-in AV capability
- internal 4X CD-ROM



Apple Performa 6200/75

- 75-MHz PowerPC 603e
- 8MB of RAM
- 1GB hard drive
- 4X internal CD-ROM
- one PDS slot
- built-in LocalTalk
- 15" Apple Multiscan
- Apple keyboard
- internal 14.4 faxmodem



RECONDITIONED **\$1399**

Workgroup Server 95

- 33-MHz 68040 processor
- 16MB of RAM
- four NuBus slots
- one processor-direct slot
- internal DDS-2 DAT optional
- int. 4X CD-ROM drive
- Built-in Ethernet



NEW **\$1299**

Specials Specials Specials

Apple PowerBook 520



\$1099

- 4MB RAM
- 240MB Hard Drive
- passive grayscale display
- 25MHz 68LC040

NEW

PowerBook 5300c

- 8MB RAM
- 500MB Hard Drive
- 16-bit active-matrix display
- 100-MHz PowerPC 603e

\$2299



\$19



"Chip Chiller"
THERMO-ELECTRIC COOLER WITH HEAT SINK FOR PPC 601+ PROCESSORS



\$99

Includes ClarisWorks™ 3.0, 160MB 1/2 height hard drive and Global Village Bronze Faxmodem

DOS COMPATIBILITY CARD

\$249



FOR POWERMAC 6100 / PERFORMA 6100
Includes 486DX2/66 processor
DEMO UNITS

\$129

E-MACHINES DOUBLECOLOR SX

- ACCELERATED 8-BIT COLOR
- HARDWARE PAN AND ZOOM
- VIRTUAL SCREENS



\$399

Apple QuickTake 150 REFURBISHED

\$199

Hewlett-Packard DeskWriter REFURBISHED



PowerBook 150 4/120



1.44 DISK DRIVES

\$129 and up

661-0474 or 661-0121



Power Macintosh AV Card Video Upgrade

\$349

*For PowerMac 6100, 7100 and 8100 series. 6100 requires adapter



\$99

14.4 PCM-CIA For PowerBook 190 and 5300 series

NEW

\$29

Internal Global Village 14.4 faxmodem for Performa 630, 640, 5200, 6200 and 6300

HARDWARE ONLY



REFURBISHED

StyleWriter 2200



1-800-227-3971

Products are refurbished unless indicated as "new". Prices reflect a 2% cash discount and are subject to change without notice.

CIRCLE 417 ON READER SERVICE CARD



HOURS:
M-F 8-6 PST
SAT 10-2



(800)951-1230

FAX (714)428-0778 Int'l (714) 428-0777
Since 1988 215 E. Baker St
Costa Mesa, CA 90804 <http://www.macbase.com>

7200 & 7300 Series

120 Mhz 16/1.2GB/8xCD/L2

- PowerPC™ 601 running at 120 Mhz
- Three PCI slots
- Built in Video & Ethernet
- 8x CD ROM

Mon. & Kb sold separately

\$1299

7300/180 Mhz New! **\$2249**

7300/200 Mhz New! **\$2579**

120Mhz 24/1.2GB/CD/DOS **\$1695**

7600 & 4400 Series

7600/132Mhz 16/1.2GB/CD/L2

- PowerPC™ 604 running at 120 Mhz
- Three PCI slots
- Built in digital video input capabilities
- Includes 256K level 2 cache

Mon. & Kb sold separately

\$1729

7600/120 16/1.2GB/8xCD **CALL**

4400/200Mhz New! **1559**

8500 & 8600 Series

150 Mhz 16MB/1.2GB/8xCD/L2

- PowerPC™ 604 running at 150 Mhz
- Three PCI slots
- Built in digital video input capabilities
- Includes 256K level 2 cache

Mon. & Kb sold separately

\$2099

8600/200 Mhz New! **\$2995**

180 Mhz 32/2GB/8xCD/L2 **\$2599**

9500 & 9600 Series

200 Mhz 32/2GB/CD/L2

- PowerPC™ 604 running at 200 Mhz
- Six PCI slots
- 12 DIMM Slots supporting 768MB of RAM
- Includes 512K level 2 cache

Mon. & Kb sold separately

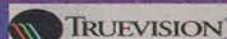
\$2999

150 Mhz 16/2GB/CD/VI **\$2998**

180MP 32/2GB/CD/VI **\$3699**

9600/200 Mhz **CALL**

UNIVERSITY, SCHOOL, GOVERNMENT, & FORTUNE 1000 P.O.s ACCEPTED



PowerBook Series

Duo 2300c 8/750/M

- Motorola 68LC040 CPU 66/33 Mhz
- Optional Duo Dock II Plus
- PowerPC expandable
- Active Color Matrix display



\$1299

1400cs/117 12/750 **\$2489**

1400cs/117 16/750/6X CD **\$2889**

1400c/117 16/1.0GB/6X CD **\$3489**

1400c/133 16/1.0GB/6X CD **\$3989**

5300ce/117 32/1GB **\$2899**

Duo 2300c 20/1GB/M **\$1599**

US ROBOTICS 28.8 PC **\$249**

Global Village 28.8 pc **\$289**

GV PowerPort Combo PC **\$439**

Printers

Apple LaserWriter 12/640 PS

- Offers 600- by 600-dpi clear printing • Comes with 4MB of RAM, expandable to 64M • RISC processor—the 30-Mhz AMD 29040 • Optional Duplex printing w/ 12MB RAM



\$1498



1500 **\$249**

2500 **\$289**

LW 12/640 **\$1479**

LW 16/600 **\$2079**

Color LW 12/660 **\$5678**



HP 4MV **\$2629**

HP 6MP **\$899**

HP 5M **\$1749**

Monitors

Apple MultipleScan 20 Display

- 0.26-mm aperture grille pitch • Upto 1,280 by 1,024 at 60 Hz • 20-in. diagonal Trinitron CRT 19.1-in. diagonal viewable image



\$1695

MultipleScan 14" **\$299**

MultipleScan 15" **\$389**

MultipleScan 15AV **\$429**

Multiple Vision 1705 **\$599**

Multiple Vision 1710 **\$799**

Multiple Vision 1710av **\$889**



MultiScan 155F2 **\$399**

MultiScan M200SX 17 **\$679**

MultiScan M200SF 17 **\$769**

MultiScan 175E2T **\$939**

Rasterops MC21 **\$1599**

Rasterops MC20 **\$1289**

NEC C400 14" **\$299**

NEC C500 15" **\$399**

NEC M500 15" **\$399**

NEC XE21 **\$1559**

NEC P1150 21" **\$1949**



SPECIAL!

UMAX S900L/200
Computer Corporation

SUPERmac

Mon. sold separately



\$3198



Offering 200 Mhz PowerPC™ 604 processor, 8X CD-ROM, 6 PCI slots, 5 expansion drive, 32 MB of RAM, 2.1GB HD, 4MB 4MB VRAM Video, Built in SCSI-2 and 10Base-T, Ext. KB, Mouse, Conflict catcher 3.0, Asante Net doubler, Mac™ 0/5, and FWD CD-ROM & H-D Tool kit.

S900L/225 32/2.1GB/CD **\$3699**

S900L/180 32/2.1GB/CD **\$2998**

J700/150 16/2.1GB/CD **\$2398**

J700L/180 24/2.1GB/CD **\$2698**

C600/160 16/1.2GB/CD **\$1299**

C600/240 16/1.2GB/CD **\$1999**

Peripherals

Rasterops

Opticolor 128 MB **NEW! \$1299**



TARGA 1000 PCI **\$1899**

TARGA 2000 PCI **\$2999**



ARCUS II **\$1759**

Specials Limited Supply

HP 2GB HARD DRIVE **\$379**

IBM 4.3GB Ultra SCSI **\$699**

CALL FOR WEEKLY SPECIALS

IOmega

ZIP DRIVE W/CART. **\$149***

E2 QUEST JAZZ 1GB W/CART \$459



* After \$59 manufacturer mail-in-rebate

Apple Workgroup Server

9150/120 16/2GB/CD/DAT **\$2399**

7250/120 16/2GB/8xCD **\$1899**

7250/120 16/2GB/8xCD/A.S **\$2648**

8550/200 32/2GB/8xCD/A.S **\$4698**

8550/200 32/2GB/8xCD/DAT/A.S **\$5498**

7250/120 16/2GB/8xCD/Inter. **\$2245**

8550/200 32/2GB/8xCD/Inter. **\$4399**

MEMORY

8MB DIMM **\$55**

16MB DIMM **\$85**

32MB DIMM **\$159**

64MB DIMM **\$299**

256K L2 DIMM CACHE **\$59**

512K L2 CACHE DIMM **\$119**

1MB V-RAM **\$49**

4MB SIMM **\$40**

8MB SIMM **\$55**

16MB SIMM **\$85**

32MB SIMM **\$159**

8MB/16MB PB 1400c **\$89/\$149**

4MB/8MB PB 5300 & 190 **\$69/\$99**

16MB/32MB PB 5300&190 **\$149/\$239**



BUSINESS LEASING AVAILABLE

CUSTOM CONFIGURATION AVAILABLE

Dealers inquiry welcome, returned products are subject to a restocking fee. Prices reflect C.O.D or cash & subject to change w/o notice. * P.O.s are subject to credit approval.



LA'S LEADING COMPUTER STORE!

LA

COMPUTER CENTER

CALL (800) 689-3933

UNIVERSITY, SCHOOLS, GOV'T
& FORTUNE 1000 P.O.'S ACCEPTED!

Call for Quantity Pricing!

INTERNATIONAL ORDERS WELCOME CALL PH. (310) 479-0999

Customer Service (310) 473-2535 FAX (310) 312-9041

POWERMACS PERFORMAS POWERBOOKS

9500/200

32/2GB/CD
w/2MB ATI
\$3299
KEYBOARD & MONITOR SOLD SEPARATELY

8500/180

16/2GB/CD
w/2MB VRAM **\$2579**
8500/150 16/2GB/8xCD
\$2299
KEYBOARD & MONITOR SOLD SEPARATELY

7200/120 7600/120

16/1.2GB/CD/256L2 **\$1349**
16/1.2GB/CD **\$1549**
KEYBOARD & MONITOR SOLD SEPARATELY

Performa 6400CD

180MHz! \$1089
16/1.6GB/8xCD/28.8Kbps
No Cache, No Monitor
200MHz! \$1599
16/2.4GB/8xCD/28.8Kbps
256K L2Cache, No Monitor

Performa 5320CD

120MHz!
16/1.2GB/8xCD
CPU, KEYBOARD,
MOUSE, &
15" MONITOR **\$1399**

5200/75	8/800/CD 15"	\$999*
6116/66	8/700/CD No Mon	\$699*
6200/75	8/1GB/CD No Mon	\$699*
6220/75	16/1GB/CD/NoMon	\$849*
6300/100	16/1GB/CD/NoMon	\$899*
631/33	8/500/CD/NoMon	\$699*
6320/120	16/1.2GB/CD/TV/NoMon	\$1099
6360	16/1.2GB/8xCD	\$999
640/33	12/500/CD/DOS	\$749*

1400C/117	16/1GB/CD	\$3199
1400CS/117	16/750/CD	\$2599
1400CS/117	16/750	\$2199/2099*
5300CE	32/1GB	\$2599/2499*
5300C	16/750	\$2399/2299*
5300C	8/500	\$1999/1899*
5300CS	16/750	\$1999/1899*
5300CS	8/500	\$1695/1595*
5300 Grayscale	8/500	\$1199/1099*
540C	4/320	\$CALL
520C	12/240/MOD	\$CALL
520	8/240	\$CALL
190CS	8/500	\$CALL
190	8/500	\$CALL
150	8/250	\$749
DUO2300C	8/750/MOD	\$1199
DUO2300C	20/1.1GB/MOD	\$1599
DUO250	12/200/MOD	\$799*
DUO280C	4/320	\$799*
DUO280	12/240/MOD	\$999*

PRINTERS

LaserWriter Pers 320	\$549
LaserWriter 4/600	\$649*
LaserWriter Select 360	\$1149
LaserWriter 16/600/PS	\$2049
LaserWriter 12/640/PS	\$1399
COLOR LW 12/600/PS	\$4499*
COLOR LW 12/660/PS	\$5299
StyleWriter 2500	\$279/199*
StyleWriter 1500	\$199
StyleWriter 2400	\$169*
StyleWriter 1200	\$169/129*
HP LaserJet 6MP	\$849
HP LaserJet 5M	\$1779
HP LaserJet 5M Color	\$6699
HP LaserJet 4MV	\$2399
HP DeskJet 870Cxi	\$479
HP DeskJet 680C	\$279

MODEMS

GlobalVillage Modems	
Mercury19.2Kbps for PB500	\$129
Teleport Gold II 14.4Kbps	\$79
Teleport Platinum 33.6Kbps	\$189
Powerport Gold 14.4Kbps PCMCIA	\$99
Powerport Plat. 28.8Kbps PCMCIA	\$299
Powerport Plat. Pro 28.8+ Enet PCMCIA	\$429
Internal 14.4 Performas	\$49

ACCESSORIES

Iomega ZIP 100 w/1cartridge	\$189
Iomega JAZ 1GB w/1cartridge	\$449
ZIP 10PK/JAZ 1Pk Cart	\$149/89
Ceniris 610 NuBus Adapter	\$49

APPLE MONITORS

14" MultiScan	\$299/249*
15" MultiScan	\$399/299*
15"AV Multiscan	\$449
1705 17" MultiScan	\$649/499*
1710/1710AV MultiScan	\$899/799
20" MultiScan	\$1699/1199*
RADIUS IntelColor 20e	\$1099*
SONY 100SF/100SX 15"	\$479/399
SONY 200SF/200SX 17"	\$759/649*
SONY 300SF2 20"	\$1579

SCANNERS

AgfaArcus II w/Trans w/Full Photo	\$1729
AgfaStudioStar w/Full Photo	\$999
AgfaStudioScan IIsi w/LE Photo	\$649
AgfaSnapScan w/LE Photo	\$299
Umax Vista S6E w/LE Photo	\$299
Umax Vista S6 w/Full Photo	\$549
Umax Vista S12 w/Deluxe	\$599
Umax Vista S12 w/Full Photo	\$729
Umax Gemini V-16	\$1099
Umax Powerlook II w/Trans w/Photo	\$1799
Umax PowerLook 2000	\$4499

Visit Us At Our NEW Web Site <http://www.LACC.com>

24Hrs A Day -- On-Line Catalog & Ordering

E-Mail us at: lacc@lacc.com

DHI Product Plus™

3 Year 5 Year

NEW OR REBUILT PRODUCTS
ELIGIBLE FOR COVERAGE
INCLUDES FREE SURGE PROTECTOR

GE 4 YEAR ON SITE WARRANTY!

ASK YOUR SALES REP REGARDING GE EXTENDED ON SITE WARRANTY

AVAILABLE WE SHIP WORLDWIDE!

OPEN MON-SAT, VISIT OUR SHOWROOM!

12002 PICO BLVD. WEST LOS ANGELES, CA 90064

* Reflects Refurbished Units. Prices Subject To Change Without Notice. CALL FOR LATEST PRICE. ALL PRICES REFLECT A 3% CASH DISCOUNT. Credit Cards Will Be Verified For Fraudulent Use.

CIRCLE 497 ON READER SERVICE CARD

MEMORY

Lifetime Warranty

1-800-808-6242

168 PIN DIMM		PowerBook Memory	
8/16MB	\$39/69	PB 1400	
32MB	\$149	16/32/48MB \$129/245/329	
64MB	\$285	PB 5300, 500 & 190	
72 PIN SIMM		16/24MB \$135/175	
4/8MB	\$18/34	32/48MB \$225/299	
16MB	\$65	PB DUO Series	
32MB	\$135	16/24MB \$119/189	
30 PIN SIMM		32/36MB \$235/285	
1/2MB	\$9/19	PB DUO 2300	
4MB	\$27	16/32MB \$129/259	
16MB	\$105	40/48MB \$315/365	
VRAM		CACHE	
256K	\$12	256K DIMM	\$45
1MB DIMM	\$27	512K DIMM	\$95
2MB f/PM 9500	\$98	256K f/PM 6400	\$95


We Specialize in PowerBook Memory

eritech Phone: (818) 244-6242 ♦ FAX: (818) 500-7699
Internet: <http://www.eritech.com> ♦ e-mail: eritech@sprynet.com
INTERNATIONAL, INC. 4551 San Fernando Road, Suite 110, Glendale, CA 91204
CIRCLE 469 ON READER SERVICE CARD

MEMORY

LIFETIME GUARANTEE

PC & Mac Memory in stock at Lowest Prices



Quality Memory Products Since 1987

CPUs
PowerBook Memory
Printer Memory
EDO Memory

DMS

Data Memory Systems, Inc.
24 Keewaydin Dr. Salem, NH 03079
Tel: 603-898-7750
Fax: 603-898-6585
email: sales@datamem.com
Web Site: www.datamem.com

MasterCard VISA iomega FOCUS UMAX

800-662-7466

University, Government & Corporate P.O.s with Approved Credit

CIRCLE 447 ON READER SERVICE CARD

MEMORY BLOWOUT

All New Chips! Low As \$3.50 per MB!

Shadow Technologies
(800) 4-SHADOW
(800) 474-2369
M-F 9-5 PST
Gov. Edu. & Corp. P.O.'s OK with Approved Credit
Addr. verification used to prevent credit card fraud

Lifetime Warranty!

SIMM-72	4M \$14.50	SIMM-72	16M \$67
8M \$28.00	32M \$135	60 nsec	
DIMM-168	8M \$37.00	DIMM-168	32M \$149
16M \$62.50	64M \$275	60 nsec	

Prices subject to change w/o notice. Call for updates.
* Offer good for comparable items in stock.

Gold Plated DIMM's

Low Price Guarantee: We will BEAT anyone's valid advertised price in this issue by 2 percent!!
Call us LAST

Mac & PC Sales & Service

POWERBOOK
PORTABLE
DESKTOP

Fax 408-336-3840
<http://www.dyneng.com>
email sales@dyneng.com
435 Park Dr., Ben Lomond, Ca. 95005

Dynamic Engineering
(408) 336-8891

RAM SIMMS & DIMMS
LIFETIME WARRANTY

POWERBOOK MEMORY
INCLUDING PB 1400

THE FINEST QUALITY WITH THE BEST PRICE!

MONITORS • SOFTWARE
MODEMS • PRINTERS
ALL STORAGE DEVICES

1.800.844.8356
FIBER CANYON
<http://www.myhomepage.net/~fibercanyon>

CIRCLE 416 ON READER SERVICE CARD

MEMORY

Quantity Discounts Available

BEST PRICES!

168 Pin DIMMs	PBook 5/53/1400	3.3v EDO DIMMs
8mb \$ 38	8mb \$ 75	16 mb \$ 105
16mb \$ 66	16mb \$ 120	32 mb \$ 210
32mb \$ 140	24mb \$ 165	64 mb \$ 425
64mb \$ 290	32mb \$ 225	
72 Pin SIMMs	30 Pin SIMMs	Storage Specials
4mb \$ 19	1mb \$ 12	lomega Zip \$ 180
8mb \$ 32	2mb \$ 19	Quantum 3.2 GB \$ 425
16mb \$ 65	4mb \$ 28	
32mb \$ 128	16mb \$ 95	
		Cache/VRAM
		61/71/81 256k \$ 25
		72/85 512k \$ 90
		1 mb VRAM \$ 29

All prices are subject to change. Limited to stock on hand.

WE BUY, SELL & TRADE MACS!
CALL (800) 80-WE-BUY

1416 Wilshire, Santa Monica, CA 90403
Tel: (310) 394-0001 Fax: (310) 394-7744
visit our web site! <http://www.macsolutions.com>
University & School P.O.'s Welcome
VISA-MasterCard-AMEX no surcharge

MAC Solutions
(800) 809-3289

CIRCLE 410 ON READER SERVICE CARD

OUR GOAL IS TO BEAT OUR COMPETITOR'S PRICES
CALL US LAST FOR A SPECIAL DISCOUNT!

MEMORY DRIVES

30 PINS

72 PINS

168 PIN DIMMS

VIDEO RAM

CACHE CARD

POWERBOOK MEMROY

ALL SERIES AVAILABLE

PRINTER MEMORY

MAJOR BRANDS AVAILABLE

LIFETIME WARRANTY ON MEMORIES

ACCELERATORS

1-800-427-2021

HBR ENTERPRISES

11628 SANTA MONICA BLVD. #201 LA. CA. 90025
M-F 7:30AM - 6PM SAT 10AM - 3PM

FAX 1-310-826-2573

INTERNATIONAL 1-310-826-3363

RETURN ITEMS ARE SUBJECT TO APPROVAL AND RESTOCK. FEE. PRICES SUBJECT TO CHANGE

TERMS: VISA, MC., AMX., DISCOVER,
PRE-PAID, C.O.D. & APPROVED P.O.s

<http://www.dnm.com/hbr/>

CIRCLE 452 ON READER SERVICE CARD

CALL FOR THE BEST PRICES
POWERMAC, PERFORMA & POWERBOOK
MACINTOSH SYSTEMS
comtech@comtech-intl.com
<http://www.comtech-intl.com>

MEMORIES
SIMMS: 30-PIN, 72-PIN, 1-32MB
DIMMS: 168-PIN, 4-128MB
CACHE: 256K, 512K, L2
VRAM: 1MB, 2MB

9008 Wilshire Blvd., Beverly Hills, CA 90211
1.800.444.6969
Tel: 310.358.9090
Fax: 310.659.4542

CIRCLE 421 ON READER SERVICE CARD

MEMORY <http://www.memory-tech.com>
Complete pricelist on our WebSite!

DIMMS		SIMMS		POWERBOOK	
168pins	16Mb \$ 71	72pins	16Mb \$ 69	5300	16Mb \$ 119
	32Mb \$ 155		32Mb \$ 141		32Mb \$ 219
	64Mb \$ 295		64Mb \$ 365	1400	8Mb \$ 69
					16Mb \$ 115
					24Mb \$ 159
EDO DIMMS					
3.3v	16Mb \$ 100	5v	16Mb \$ 75	500	16Mb \$ 155
	32Mb \$ 175		32Mb \$ 165		24Mb \$ 179
	64Mb \$ 325		64Mb \$ 295	2300	16Mb \$ 135
					32Mb \$ 205
					48Mb \$ 379
				\$999 SPECIAL	
				CACHE 256K SIMM \$22	

PowerEdge Plug-n-go 604e/225Mhz Processor Accelerator card
Prices may change due to memory market fluctuations.
Austin • Texas Email: info@memory-tech.com
Local: 512/451-2600 Fax: 512/451-3323

800-950-8411

WE SHIP WORLDWIDE!
MasterCard, VISA, American Express and Corporate AmEx. Purchasing card accepted.
All memory new with lifetime warranty. All returns subject to 15% restocking fee.

CIRCLE 414 ON READER SERVICE CARD

ADVANTAGE MEMORY CORPORATION

TOSHIBA

Kingston

30Pin SIMM 2k 60/70ns
1MB.....\$9
2MB.....\$18
4MB.....\$23
16MB.....\$99

POWERBOOK RAM
500/5300/190/2300
4MB.....\$39
8MB.....\$79
16MB.....\$119
32MB.....\$219
48MB.....\$349

L2 CACHE
256k - 61/71/81XX.....\$25
256k - 72/75/85XX.....\$49
256k - 54/64XX.....\$99
512k - 72/75/85XX.....\$99

VRAM
1MB DIMM7X/8X/9X.....\$29
256k SIMM 61/71/81.....\$15
512k SIMM 61/71/81.....\$25

PNY

VIKING COMPONENTS

NewerRAM

TECHWORKS

SOUTHLAND MICRO SYSTEMS

HYUNDAI

SIMMS SAMSUNG
2k•72pin 60ns
4 MB.....\$17
8MB.....\$29
16MB.....\$65
32 MB.....\$129

MITSUBISHI

OKI DIMMS IBM
2k•168pin 60ns
8 MB.....\$37
16 MB.....\$67
32 MB.....\$139
64 MB.....\$279

FUJITSU

MOTOROLA

HIGHEST QUALITY LOWEST PRICES GUARANTEED!

LIFETIME WARRANTY

30 DAY MONEY BACK GUARANTEE

GOVT & EDUC NET POs WELCOME

NO CREDIT CARD SURCHARGES

ORDER 24 HRS A DAY

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

WE WILL BEAT ANY PRICE !

CALL OR LOG ON FOR LATEST PRICING!

800/900-4599

Voice 954/725-9777 • Fax 954/725-9977

<http://www.sourcecomp.com>

VISA MasterCard FedEx Federal Express

CIRCLE 409 ON READER SERVICE CARD

Run Your Mac Faster & Save!



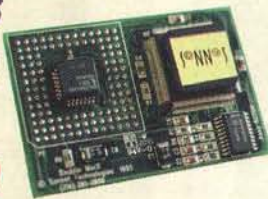
Accelerate Mac LC, LC II, Color Classic, IIfx, IIsx, IIfx, or Performa 600 to '040 Speed Starting at \$199

Sonnet Presto™ LC 040 50/25 MHz accelerators increase Mac LC, LC II, or Color Classic performance 470% as fast as a stock machine (processor performance, MacBench2). Use RAMDoubler or Virtual Memory to break the 10MB barrier with the Presto LC (except Mac LC, OS 7.1+req'd). The Presto LC is only \$199, or with a hardware Floating Point Unit (FPU), only \$249.

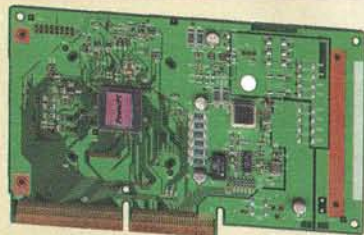
The 80/40MHz version for the Mac IIsi*, IIfx, IIfx, or Performa 600 increases processor performance by 250-500%. The 80/40 MHz Presto is only \$299, or with FPU and 128K level 2 cache, \$399.

All Prestos are 100% application software compatible and run through System 7.5.5*. The Prestos are easy to install in the Macs' processor direct slot, and come with clear installation instructions. (*Some configurations are not compatible with RAMDoubler or Virtual Memory. Adapter req'd for IIsi)

Allegro's Fast 68030s Give New Life to Mac SE, II, IIfx, LC, LC II, Color Classic from \$99



Give your older Mac more muscle. Sonnet Allegros™ are packed with features at bargain prices. The 33MHz Allegro LC for the Mac LC, LC II, Color Classic doubles your cpu speed, adds 16K level 2 cache and includes an FPU—all for only \$149. The 33MHz Allegro SE increases performance 460%, includes an FPU and 4 SIMM slots to expand memory up to 16MB for a bargain \$199. Allegro Mac II, IIfx models double '030 speed to 33MHz for a mere \$99.



150MHz PowerPC 604 for 7500..\$399

Give your Power Mac 7500 the PowerPC 604 upgrade it was designed for. This power-packed upgrade is 100% compatible with your existing software and hardware—including cache card. Just plug it in and enjoy the productivity you deserve. *with 601 card trade-in.

66MHz PowerPC 601 with 256K Cache
For Quadra 605, LC/Performa 47X/57X/58X/63X.....\$599



Upgrade Your PowerBook 520/540 to 100MHz 603e with 8MB Memory for \$399*

This is the genuine Apple Computer upgrade product designed to bring your trusted PowerBook 520 or 540 into the PowerPC generation with a speedy 100MHz 603e PowerPC processor. With this upgrade you can run all native PowerPC applications the way they were meant to be. Upgrade your reliable ethernet-equipped PowerBook to PowerPC, and prepare for the MacOS future. The upgrade includes 8MB of memory and is compatible with your existing RAM expansion board. *Price after a \$100 discount for trade-in of your existing 68LC040 card.

Run the Fastest Quadra Ever! 100/50 MHz is Faster than 840AV



Only
\$399

Plug the Sonnet QuadDoubler™ into a Quadra 610, 660AV, 700, 900, or Centris 610*, 660AV, 650 and run virtually twice as fast as before for only \$399. No software upgrades or changes are required. Just plug the QuadDoubler into your CPU socket and power up your Mac. A CPU extraction tool is even included to simplify installation. The QuadDoubler includes a Floating Point Unit for superfast rendering or calculations. A cache card is also available for the Quadra 700/900 for even more performance. *The Centris 610 QuadDoubler runs at 80/40 MHz and is value-priced at \$299 (without FPU \$199).



Add Math Coprocessor to 68040 Macs & PowerBooks

Give your Quadra, Centris, or PowerBook 520/540 a math coprocessor for rendering, Photoshop, CAD, or other Math intensive applications. 25MHz 68040 \$125*, 33MHz 68040 with heat sink \$169*. Add a full 66/33MHz 68040 with FPU to your PowerBook 520 or 540 for \$249*. This also speeds 520 to 66/33MHz. Call for PB190, Duo280 FPU. *68LC040 trade-in req'd.

Power FPU

Add FPU support to the Apple 68K emulator. Run all 68K FPU applications at full speed on your Power Mac FPU hardware. Eliminate most coprocessor not installed errors. 10x faster than Software FPU. By John Neil & Assoc. \$75.



Sonnet Is Cache King



We build 'em & will not be undersold!
256K for 6100/7100.....\$49
256K for 7200/7500.....\$59
512K for 7200/7500/7600/8500...\$109
256K for 5260/5400/6360/6400.....\$99



SONNET TECHNOLOGIES, INC.
18004 Sky Park Circle, Irvine, California 92614
714-261-2800 Fax 261-2461 sales@sonnettech.com

800-786-6260
<http://www.sonnettech.com>



VISA, MasterCard and AMEX no surcharge. We used to have a surcharge; we don't anymore. Government, corporate and education P.O.s welcome. We actually welcome all types of customers, as long as you are nice to our sales reps. One year limited warranty on all products. If you step on it and break it we limit the warranty, otherwise we don't limit it too much. All returns require an authorization and are subject to a restocking fee. We think you'll love our products; if you don't we have to pay Chuck to process the return, so you have to help pay for Chuck. ©1997 Sonnet Technologies, Inc. Sonnet, the Sonnet Logo, Allegro, Presto and QuadDoubler are trademarks of Sonnet Technologies.

CIRCLE 463 ON READER SERVICE CARD



1-800-553-4230

Call Mac Xtra Now!

Fax • 206-746-5324 International • 206-746-3803



168-Pin DIMMs

For PM 9500, 9500, 7500, 7200

8MB	---	\$45
16MB	---	70
32MB	---	148
64MB	---	290

72-Pin SIMMs

For Q 605/650, 610, 650, 700, 800-840AV,
LCIII/475/650, PERF 450-560/575 / 615CD,
PMAC 6171/6100
WB501/601/651/6150/615150

4MB 70NS/60NS	---	\$20/21
8MB 70NS/60NS	---	35/37
16MB 70NS/60NS	---	70/73
32MB 60NS	---	148

PC SIMMS

4MB 70NS/EDO	---	35/35
8MB 70NS/EDO	---	52/40
16MB 70NS/EDO	---	114/89
32MB 70NS/EDO	---	235/159

<http://www.macextra.com>

EDO DIMMS

new!

3.3volt

for Starmax & Gateway 200

64MB	---	\$419
32MB	---	237
16MB	---	96
8MB	---	59

5volt

for Power Computing
PowerBase system

64MB	---	\$345
32MB	---	217
16MB	---	95
8MB	---	55

Powerbook Series

PB 500 Series

4MB	---	\$74	8MB	---	\$68
16MB	---	125	32MB	---	247

PB 2300 Series

4MB	---	\$74	8MB	---	\$98
16MB	---	120	32MB	---	281
36MB	---	286			

PB 1400 Series

8MB	---	\$75	16MB	---	\$125
24MB	---	189	32MB	---	242

PB 5300 Series

8MB	---	\$78	16MB	---	\$123
12MB	---	116	48MB	---	353
32MB	---	237			

PB DUO 210/230 Series

8MB	---	\$75	12MB	---	\$109
20MB	---	179	28MB	---	255

PB Accessories

Nupowr 200 Mhz CPU	---	\$645
(Powerbook 1400)		
Nupowr 167Mhz 8MB	---	730
Nupowr 167Mhz 0MB	---	636
VST PB5300 Bat/Chgr	---	329
Apple PB500 PC Upgr	---	1229
Int. Battery pk 140/180	---	59
Battery PB100	---	49

PLEASE CALL US FOR ALL
YOUR MEMORY NEEDS!

Modems

GLOBAL VILLAGE	
Teleport Plat. 28.8 V.34	--- \$63
Teleport 33.6 Intet Ed w/vo	--- 179
Powerport Plat. PC Card 28.8	--- 349
Powerport Plat. PC Card Pro	--- 519
SUPRA	
Express 33.6 EXT V.34	--- \$149
14.4 V.32BIS	--- 69
33.6 V.34 Fax Modem	--- 199
Supraonic 28.8 V.36	--- 275
Supraonic 33.6 V.34 W/Voice	--- 275
Express 28.8 EXT V.34	--- 149
MOTOROLA	
19DN Biterurfer Pro	--- \$365
US ROBOTICS	
28.8 V.34 Internet Bundle	--- \$175
28.8 Sportster Ext W/Voice	--- 205
28.8 Sportster V.34PC card	--- 215

Media

IOMEGA	
ZIP 100 Single	--- \$19
ZIP 100 5-Pack	--- 49.50
ZIP 100 10-Pack	--- 139
JAZ 540MB Single	--- 69
JAZ 540MB 5-Pack	--- 294
JAZ 1GB Single	--- 123
JAZ 1GB 5-Pack	--- 479
SYQUEST	
EZ FLYER 230MB Cart.	--- \$29.50
5YJET 1.3GB Cart.	--- 108
5YJET 1.3GB 3/PK Cart.	--- 278
5YJET 1.3GB 5-PK Cart.	--- 452
SONY	
MO 128MB 3-Pack	--- \$44
128MB Format 3-Pack	--- 50
MO 230MB 3-Pack	--- 55
230MB Format 3-Pack	--- 60
DDS 4MM 2GB Data	--- 8
DDS 4MM 4GB Data	--- 23

VERBATIM

128MB 3.5 MO Disk	--- \$16
230MB MO Disk	--- 20
600MB/512K MO Disk	--- 51
650MB/1024K MO Disk	--- 51
1.2GB/512K MO Disk	--- 60
1.3GB/1024K MO Disk	--- 60
DATA 4MM DC 197 FT	--- 6.50
DATA 4MM DC 295 FT	--- 7.50
DATA 8MM DC 387 FT	--- 6.50

FPU's

FPU'S/MATH/COPROCESSOR	
CENTRIX FPU 25MHZ	--- \$186
FPU 33MHZ DUO/P600	--- 51
FPU Color Classic 16MHZ	--- 49
LC575 33MHZ FPU	--- 236
LC FPU 16MHZ	--- 48
LCIII FPU 16MHZ	--- 49
VRAM	
256K 80NS V RAM	--- \$15
512K VRAM	--- 20
1MB V RAM (DIMM)	--- 45
2MB V RAM (DIMM)	--- 119
CACHE	
256K Cache 61/71/8100	--- \$40
256K DIMM Cache	--- 64
512K DIMM Cache	--- 139

Drives

APPLE DRIVES	
1.2GB Drive	--- \$399
2GB/4GB Drive	--- 450/1089
QUANTUM	
1.2GB Int/Ext Drives	--- \$323/399
2.1GB Int/Ext Drives	--- 409/479
4.3GB Int Drive	--- 1127
4.3GB Ext Drive	--- 1225
NEC	
6XE Multi-spin CD Drive	--- \$369
4XC 7-CHR CD-Rom Drive	--- 359
4X 4V Int. CD-Rom Drive	--- 176
IOMEGA	
Zip 100 Drive w/Ctg.	--- \$199
Jaz 1GB Drive w/Ctg.	--- 499
SYQUEST	
EZ FLYER 230 Drive	--- \$295
5YJET 1.3GB Drive	--- 485

Mac Xtra

Prices subject to change without notice.
Office Hours: M-F, 7am to 6pm; Sat., 9am to 4pm

Overnight Del. \$7.50 and UPS ground \$6 & up
Returns subject to approval & restocking fee
We accept P.O.'s from Fortune 500 & educational institutions

Mac Xtra • 1075 Bellevue Way NE, Ste. 114,
Bellevue, WA 98004
Phone (206) • 746-3803 • Fax (206) • 746-5324

CIRCLE 561 ON READER SERVICE CARD

SIZZLIN' HOT PRICES



WITH A NORTHWEST FLAVOR
FROM "THE LLB CO."



1.800.848.8967

International: 206.746.0229 Web Site: HTTP://llb.com

Fax: 206.746.5168

DRIVES +

SCANNERS

QUANTUM

2.1GB EXTERNAL DRIVE	\$479
2.1GB INTERNAL DRIVE	409
ATLAS 4.3GB EXTERNAL DRIVE	1225
ATLAS 4.3 INTERNAL DRIVE	1127

APPLE

EXTERNAL 4GB DRIVE	\$1089
APPLE 2GB EXT DRIVE	450

IOEAGA

ZIP 100 EXTERNAL DRIVE	\$199
ZIP 100MB CARTRIDGE SINGLE	19
100MB CARTRIDGE 3 PACK	49.50
ZIP 100MB CARTRIDGE 10 PACK	139
JAZ 1GB EXT. SCSI DRIVE	499
JAZ 1GB CARTRIDGE SINGLE	123
JAZ 1GB CARTRIDGE 5 PACK	479

UMAX

Powerlook Engine	\$1369
Powerlook 2000 Engine	2908
Powerlook II Engine	1505
Powerlook II Trans. Adptr	320
Mirage Engine	5858

POLAROID

Sprintscan 35 LE	\$979
Sprintscan 35 ES	1559
Sprintscan 35+	2015
Sprintscan 45	7529

NIKON

Coolscan II Ext LS/20	\$1125
Scantouch AX-1200	1055
Coolprint Dig Printer	1835
Super Coolscan LS	2049
Super Coolscan SF100 Autodisk	529

POWERBOOK MEMORY!

PB5300

8MB	\$78
16MB/32MB	139/259
48MB	353

PB2300

4MB	\$74
8MB	116
16MB	141
20MB	241
32MB	306
36MB	310
48MB	453

PB500

4MB/8MB	\$74/79
16MB/32MB	142/270

PB-DUO

DUO 4MB	\$75
DUO 8MB	89
DUO 12MB	135
DUO 20MB	220
DUO 28MB	289
DUO 36MB	313

PB190

4MB/8MB	\$60/102
12MB/16MB	136/150
32MB 70NS	245

PB150

4MB/8MB	\$53/80
12MB/20MB	164/261
28MB	354

MEMORY

DIMMS

128MB 60NS	\$920
64MB 60NS	350
32MB 60NS	173
16MB 60NS	85
8MB 60NS	45

EDO DIMMS NEW!

3.3VOLT FOR STARMAX	
64MB	\$419
32MB	237
16MB	95
8MB	59

EDO DIMMS NEW!

5VOLT FOR POWERBASE (POWER COMPUTING)	
32MB	\$217
16MB	95
8MB	55

72-PIN SIMMS

32MB 60NS	\$175
16MB 70/60NS	84/86
8MB 70/60NS	36/39
4MB 70/60NS	21/23

36-BIT/32 BIT

32MB 70NS/EDO	246/180
16MB 70NS/EDO	114/89
8MB 70NS/EDO	52/40
4MB 70NS/EDO	35/35

30-PIN SIMMS

16MB 70NS	\$120
8MB 70NS	65
4MB 80/70NS	29/31
4MB PAL II/IIx	60
2MB 80/70NS	18/20

MODEMS

GLOBAL VILLAGE

#284346 Teleport 33.6 INET W/SW	\$179
#137391 Teleport 33.6 Speakerphone Ed	265
#137379 Powerport Platinum PCCard	349
#137380 Powerport PlatPro PCCard	519

SUPRA

#5033FX Supra 33.6 v.34 Fax Modem	\$199
#5033XP Supra 33.6 v.34 Fax Modem	149
#50V34E-MC Supra 28800 V.34 S/R	175
#5033SS SupraSonic 33.6 v.34 W/Voice	275
#5014XP SupraExpress 144 Plus	45

US ROBOTICS

#USR 388979 Sportster 14400 Mac Fax	\$78
#USR 719100 Sportster 28.8 V.34 Inet Bndl	175
#USR 719119 Sportster 28.8 V.34 Voice	205
#USR 719113 Sportster V.34 PCCard	215

MEGAHERTZ

#MHZ XIA2288 Cruise Card 28.8	\$259
#MHZ XIA3288 Cell Capable Cruise 28.8	252

Electronic Orders:

E-Mail: 73423.1272

@Compuserve.com

FREE CATALOG: 1.800.848.8967

- PO's are accepted upon approval.
- All major credit cards accepted & charged when order is shipped.
- No surcharge on charge cards.
- Prices subject to change, not responsible for errors.
- We welcome International orders.
- Orders received before 8:00pm EST weekdays shipped same day.
- Open 6am to 7pm M-F 9am to 4pm PST
- Returns subject to a 15% restocking fee.

The LLB Co., Inc.
13228 NE 20th St., Ste. B,
Bellevue, WA 98005

ACCESSORIES

NEWER TECHNOLOGY

PB1400 SERIES

NUpower 1400 200MHZ	\$645
---------------------	-------

PB500 SERIES

Newer NUpower 167 MHz 0MB	\$653
Newer NUpower 167 MHz 8MB	899

MAXPOWER -604E

POWERPC UPGRADE

N 7MX 180A MAXpower 180MHZ	\$832
N 7MX 200A MAXpower 200MHZ	1015

POWERBOOK DUO

DOCKING PRODUCTS

16scc UltraDock	\$242
Color MicroDock/SCSI MicroDock	242/138

MISC

FPU

CENTRIX FPU 25 MHz	\$189
DUO/P600 FPU 33 MHz	52
COLOR CLASSIC FPU 25 MHz	49
LCIII FPU 33 MHz	49
LC/LCII FPU 16 MHz	49
LC575 FPU 33 MHz	240

VRAM

256K VRAM	\$15
512K VRAM	20
1MB VRAM PM72/75/8500	49
2MB VRAM PM9500	119

CACHE

256K CACHE CARD	\$55
512K CACHE CARD	220
1MB CACHE CARD	329
256K DIMM CACHE	64
512K DIMM CACHE	139

NECESSITIES

CONNECTIX RAM DOUBLER	\$55
CONNECTIX RAM & SPEED DOUBLER	89
KENSINGTON TURBO MOUSE	109
MAC101E KEYBOARD	95

Memory
CD ROM

THE LLB CO.

PERIPHERAL ENHANCEMENTS CORPORATION

WORLDWIDE MEMORY MANUFACTURERS

800/259-6565

www.peripheral.com

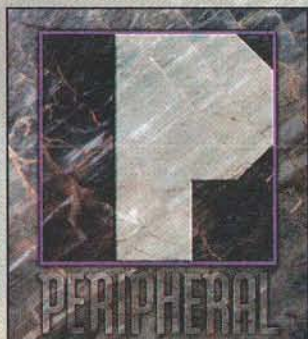
Founded in 1986, Peripheral Enhancements Corporation, (formerly Peripheral Outlet, Inc.) is a leading worldwide manufacturer of computer memory upgrades. Our ten-year relationship with customers is built on mutual trust and respect. You have no time for problems; that's why our salespeople don't promise unless they can deliver. Top-quality memory, delivered on time, as agreed and at affordable prices, are the cornerstones upon which Peripheral Enhancements Corporation builds its relationships.

Unsurpassed Technical Support. Our tech support team stays abreast of the changing memory business, offering reliable, informed answers to your questions. Easy-to-follow instructions are available with each shipment. Technical assistance is toll free!

Lifetime Warranty. Peripheral Enhancements Corporation stands behind every product we sell. We test each and every module prior to shipping. If a problem ever arises with a part, however, send it back for a prompt repair or replacement, often performed within 24 hours of our receiving the part from you.

100% Reliability. Our buyers source top-quality components worldwide and build modules with quality unsurpassed in the industry. Every memory module sold is 100% tested before shipping and backed by a lifetime warranty. No arguments, no hassles.

Aggressive Pricing. Peripheral Enhancements Corporation sells millions of dollars in upgrades every week. Our consistent buying in large quantities assures you a competitive price, every time you order.



PERIPHERAL ENHANCEMENTS CORPORATION

327 East 14th, PO Box 2329
Ada, Oklahoma 74820
405/332-6581 FAX 405/436-2245
sales@peripheral.com
HOURS: Monday-Thursday 6AM-7PM,
Friday 6AM-6PM CST

International Toll Free Numbers
Distributors and Resellers only, please.

Australia 1 800 122 764
Belgium 0800 7 1661
Denmark 8001 6175
Finland 08001 10123
France 0800 90 1997
Germany 0130 818 983
Greece 00 800 11 948 0302
Italy 1 678 77937
Japan 0066 33800 120
Luxembourg 0800 4009
Netherlands 0602 26638
Norway 800 12698
Portugal 0501 11 077
Spain 900 931 089
Sweden 020 797 857
Switzerland 155 7608
UK 0800 962 058
USA 1 800 256 6581

MEMORY FOR THE MAC CALL FOR THE BEST PRICES!

168 pin DIMMs for PCI Macs

8, 16, 32, and 64 Megabyte SIMMs

72 Pin Memory for Nubus Macs

4, 8, 16, 32, and 64 MB non-composite SIMMs

Standard 30 pin SIMMs

1, 2, 4, 8, and 16 Megabyte SIMMs

PowerBook 5300/190 Memory

4 / 8 Megabyte upgrades

16 / 32 Megabyte upgrades

40 / 48 / 56 Megabyte upgrades

PowerBook 500-series Memory

4 / 8 Megabyte upgrades

16 / 24 Megabyte upgrades

32 Megabyte upgrade

PowerBook 100-series Memory

2, 4, 6, 8, and 10 MB Upgrades - Call for the latest prices! All PowerBook memory upgrades include necessary tools, static protection, and instructions for safe installation.

Duo-series Memory

4 / 8 Megabyte upgrades

12 / 14 Megabyte upgrades

20 / 28 Megabyte upgrades

Video RAM

1 MB VRAM for 7200/7500/8500

2 MB VRAM for ATI Video Card

256K/512K VRAM 80ns

Cache Cards, Etc.

Cache DIMMs for 7200/7500/8500

256K-1MB Cache Card for PowerMacs

68882 Math Coprocessors

68882 25 MHz, 33 MHz, and 50 MHz FPU's

Newton Upgrade Products

512K, 1 MB, and 2 MB Static RAM Storage Cards

2 MB, 4 MB, and 8 MB Flash Storage Cards

16 MB, 20 MB, and 24 MB Flash Storage Cards

We accept Visa/MC/Amex/Discover, and COD Cashiers check upon approval. Educational, Government, and Fortune 500 P/Os accepted upon approval. Due to volatility in the market all prices and availability are subject to change without notice.

We carry memory for all popular desktops, laptops, workstations, and printers.

Miscellaneous

68040 Processors with FPU

25 MHz, 33 MHz, and 40 MHz.

LaserWriter 320 2, 4, 6 MB upgrades

LaserWriter Pro 810 4MB/8 MB upgrades

T.I. MicroLaser 1 MB

Hewlett Packard printers

68851 16MHz PMMU

if requested, MODE 32 software included free w/PMMU

Mac Portable 3-7 MB Cards

TOLL FREE TECHNICAL SUPPORT

Our tech support and installation instructions are the best in the industry! We have a **LIFETIME WARRANTY** on all of our memory products.

Order by 6:00 PM CST for same day shipping!*

Overnight delivery from \$8.00

*some restrictions apply

PROFESSIONAL DATA RECOVERY SERVICES.

Hard Drives, Floppy Drives, Syquest,
EZ-135, ZIP, JAZ, Optical & Bernoulli.

TOTAL RECALL
THE DATA RECOVERY COMPANY™



800-743-0594 VISIT US AT... www.recallusa.com

2462 WAYNOKA ROAD • COLO. SPRINGS, CO 80915 • TEL (719) 380-1616 • FAX (719) 380-7022
CIRCLE 458 ON READER SERVICE CARD

DIGITAL IMAGING

Slides & Negatives \$3.75
4x5 chromes/negs \$30
Large Posters & Displays
Scanning High & Low Res
Photo CD Scans & LVT Output
Short Run 1200 dpi Color Output
Quantity Prints, Slides, Overheads

Show & Tell 39 W 38th St., NY, NY 10018
212 840 2912 • 212 840 7953 (fax)

CIRCLE 550 ON READER SERVICE CARD

Big Color Posters Overnight!

Send PC/Mac files FTP or Priority Air
Express to Imagers and receive the
completed posters the next morning.
\$84 for 36 x 48 on our Lasermaster
Pro Ink Jet. \$189 for 54 x 72 Express.



IMAGERS
Digital Production
Center

800-672-7032
404-351-5800

www.imagers.com

1575 Northside Dr. Suite 490 Atlanta 30318
CIRCLE 453 ON READER SERVICE CARD

DESKTOP OUTPUT SERVICES

50% OFF
YOUR FIRST JOB

MAC & PC FILES ACCEPTED

- Linotronic output up to 3386 dpi
- Dye-Sublimation ■ Wax Thermal
- Color Laser Prints/Copies
- Big Color Posters

Celebrating 10 years of offering the highest
quality, fastest turnaround and lowest prices.

SPECTRUM ARTS, LTD.
7455 New Ridge Rd. Suite E Hanover, MD 21076

800-788-1357 410-691-7715 301-621-1181
www.spectrumarts.com

CIRCLE 465 ON READER SERVICE CARD

Fiery DocuColor Copies Overnight!

Digital color originals from your files. Send
FTP or Priority Air Express to Imagers and
get the completed job the next morning.
Get quality color and technical support!
As low as \$.50 per original



IMAGERS
Digital Production
Center

800-672-7032
404-351-5800

www.imagers.com

1575 Northside Dr. Suite 490 Atlanta 30318
CIRCLE 438 ON READER SERVICE CARD

Data Recovery in hours.

- Over 10 years of experience with
clients worldwide including Apple,
NASA, HP, and FedEx.
- We've recovered more than half-a-
million megabytes of Mac Data alone.
- You only pay when there's a recovery.
- Express One-Day Service is available.
- Call 24 hours a day.

415-495-5556 • FAX 415-495-5553 • RESTRICTIONS MAY APPLY
381 Clementina Street • San Francisco, California 94103



LAZARUS
DATA RECOVERY

Working at the speed of business.

800-341-DATA

CIRCLE 427 ON READER SERVICE CARD

MAC REPAIR & UPGRADE

24 HOUR SERVICE TURNAROUND • LONGER WARRANTY
FREE DIAGNOSTIC • COMPETITIVE PRICE



DT & T

**MACINTOSH
SERVICES, INC.**

- * Specialize in component repairs:
• Power Mac • Power Book • Logic boards
- * Advance Exchanges

800-622-7977

720 East Evelyn Ave., Sunnyvale, CA 94086 • Tel: 408-720-9899 • Fax: 408-720-9459
<http://www.dttservice.com>

CIRCLE 504 ON READER SERVICE CARD

SCANNING SERVICES Overnight!

Kodak
PHOTO CD
SERVICE PROVIDER

Pro/\$8 • 35mm Master/\$90

IMAGERS
Digital Production
Center

800-672-7032
404-351-5800

www.imagers.com

1575 Northside Dr. Suite 490 Atlanta 30318
CIRCLE 433 ON READER SERVICE CARD



SLIDES \$2.75 FIERY \$4.75

an introductory offer!

PC & MAC, 35mm SLIDES & DUPES,
SCANS, OVERHEADS, COLOR PRINTS

**NEXT WAVE
PRODUCTIONS**
MULTIMEDIA PRESENTATIONS AND ONLINE SERVICES
134 TENTH AVENUE NEW YORK, NY 10011-4727

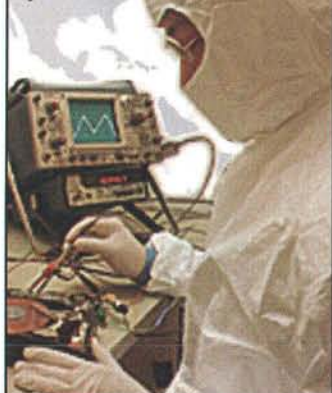
call 212 989 2727, 800 445 9002

www.NextwaveProd.com

CIRCLE 488 ON READER SERVICE CARD

MICRO COM

When you absolutely,
positively have to get
your data back...



www.macrecovery.com

800 469-2549

19011 Ventura Blvd. Tarzana, CA 91356

818 881-7417 • 818 881-8015 Fax

CIRCLE 422 ON READER SERVICE CARD

www.macworld.com/buyers/guide

Buyer's Guide



Want bargains online?

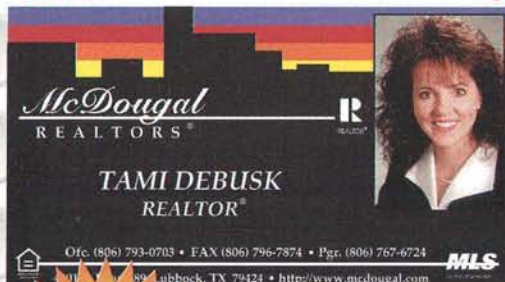
Bookmark the
Web Shopper at:

Macworld
ONLINE

Contact Macworld on
how to advertise.
(800) 888-8622

WE SPECIALIZE IN WHOLESALE WATERLESS COLOR PRINTING

1000 FULL COLOR BUSINESS CARDS FOR \$100 Sug. retail price \$179
1000 FULL COLOR POSTCARDS FOR \$149 Sug. retail price \$249

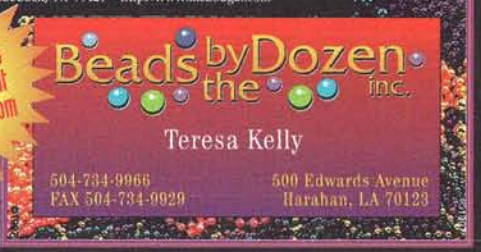


McDougal
REALTORS[®]

TAMI DEBUSK
REALTOR[®]

Off. (806) 793-0703 • FAX (806) 796-7874 • Pgr. (806) 767-6724
 894 Lubbock, TX 79424 • <http://www.mcdougal.com>

Save Money!
Upload Your Files
to Our FTP Site at
ftp.copycraft.com



Beads by Dozen
the inc.

Teresa Kelly

504-734-9966 500 Edwards Avenue
 FAX 504-734-9929 Harahan, LA 70123

FEATURING 300 LINE SCREEN WATERLESS OFFSET PRINTING

Output from your computer files on Super Premium
10pt. Kromekote Stock with FREE aqueous coating.
 Rates for Brochures, Booklets and Flat Sheets are also available.

MONTHLY 4-COLOR SPECIAL

5000 BROCHURES
11X17 Full Color Folded Brochures
printed from your files on 80 lb.
Gloss Text with FREE aqueous coat.
 SHIPPING NOT INCLUDED

\$1489
SUGGESTED
RETAIL \$2290

GRAPHIC ARTS
AVAILABLE



4413 82nd Street • Lubbock, TX 79424 • FAX: 806.794.1305

QUARK[®]
Authorized
Service Bureau

Factory Authorized
COREL[®]
Service Bureau

Email your requests for printing quotes to request@copycraft.com

1.800.794.5594

CALL TODAY FOR A **FREE** COPY OF OUR **NEW** FULL COLOR CATALOG

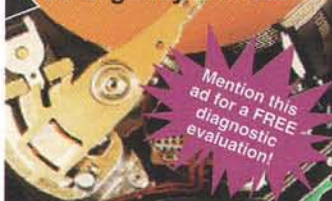
Visit <http://www.copycraft.com> for more 4-Color Specials!

CIRCLE 426 ON READER SERVICE CARD

ONTRACK DATA RECOVERY

The World Leader
in Professional
Data Recovery Services!

- Mac Specialists
- Any Media
- All Operating Systems
- Emergency Services



Ontrack
DATA RECOVERY

Mpls • LA • DC • London • Tokyo • Stuttgart

1-800-872-2599

www.ontrack.com

©1996 Ontrack Data Recovery, Inc.

CIRCLE 459 ON READER SERVICE CARD

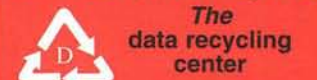
Data Recovery

Mac Specialists
Novell, DOS, Windows 95

Flat Rate Pricing

No Evaluation Fees
24 Hour Service Available
17 Years Experience
Competitive Pricing
Other Operating Systems - Call!

ECO Electronics, Inc.



The
data recycling
center

ECONomically and ECOlogically the
place to send your hard drive, removable media,
and/or floppy diskettes!

800-339-3412

561-691-0019 • 561-691-0014 Fax

www.eco-datarecov.com

4115 Burns Rd., Palm Beach Gardens, FL 33410

CIRCLE 430 ON READER SERVICE CARD

Data Recovery and Assistance:

800 440-1904



DriveSavers' advanced, proprietary techniques and amazing
success stories have been featured on CNN, C-Net, and
NextStep, and appeared in *The Los Angeles Times*, *MacUser*,
and *Nation's Business* (to name just a few). That's because,
since 1985, businesses and individuals have trusted us to
recover data others said was lost forever. Just give us a call.
We can save it!

Visit us at: www.drivesavers.com

400 BEL MARIN KEYS BL., NOVATO, CA 94949, PHONE: 415-382-2000, FAX: 415-883-0780

CIRCLE 510 ON READER SERVICE CARD

MAC REPAIR

Mac Shop Northwest

- Apple[™] Certified Technicians
- One-Day Service Turnaround*
- Hard Disk Repair & Data Recovery
- Up to 75% below Dealer Rates
- Component-Level Repairs
- Expert Advice and Prices by Phone
- Power Supplies & Logic Boards*
- Lifetime Repair Warranty*

Tel: 1-503-642-3456

*on many repairs. Visa/MC/AX. Fast overnight
shipping available. We use genuine Apple[™] parts.



1-800-MAC-SHOP

CIRCLE 515 ON READER SERVICE CARD

Postscript Slides Overnight!

Send PC/Mac files FTP or Priority Air
Express to Imagers and receive the
completed slides the next morning
for \$4.95 each. Economy slides at
\$3.00 each in 48+ hours. Call Today!

Great Value!

\$3.00
Slides
Only

Quality Guaranteed

IMAGERS[®]
Digital Production
Center

800-672-7032
404-351-5800

www.imagers.com

1575 Northside Dr. Suite 490 Atlanta 30318

CIRCLE 435 ON READER SERVICE CARD

DIRECTORY

Macworld
DIRECTORY

3D GAME HARDWARE

LC STEREO GLASSES \$99.95!

Liquid crystal shutter glasses w/ controller & software
True Stereoscopic 3D, in color, for games and modeling
Supports Apple's Game Sprockets (included)
Plugs into standard Mac video port; powered by ADB
Up to 4 users; extra glasses just \$49.95

MACADAPT

Visa/MC/AmEx/Disc • 510-525-0789 • fax: 525-5740
jzjames@macadapt.com • <http://www.macadapt.com>

CIRCLE 583 ON READER SERVICE CARD

COMPUTER INSURANCE

INSURES YOUR MAC

The Computerowners™ insurance policy repairs or replaces
hardware, media and purchased software. \$49 a year covers up
to \$2,000 of equipment against theft, fire, accidents, power
surge, natural disasters and more! \$50 deductible. Call for
immediate coverage or information. 1-800-800-1492.

SAFEWARE, The Insurance Agency, Inc.

5760 N. High Street, PO Box 656
Columbus, Ohio 43085

CIRCLE 568 ON READER SERVICE CARD

GENEALOGY SOFTWARE

Family Heritage File™

Most powerful and easy genealogy program. Rated "BEST" by
Macworld. Designed by genealogy professionals • Graphic
Pedigree, Descendants, Families, Individuals, Marriages,
Surnames • Unlimited Info/Individual • Export • GEDCOM
• Jewish/LDS features. Demo \$7. Free Lit. Pak.

STAR-COM MICROSYSTEMS

Order Direct • Visa/MC OK • 801-225-1480
Windsor Park E., 25 W. 1480 N., Orem, UT 84057

MEDICAL RECORDS

Electronic Medical Records

Care4th® Pro will revolutionize your practice.
Doctor-designed, astoundingly powerful, yet it feels
like a chart. Starting under \$2800, Mac/PowerMac.

www.med4th.com

Med4th Systems, Inc.

1165 W. Green Tree Rd. • Milwaukee, WI 53217
414 351-1988 414 351-1954 Fax

CIRCLE 585 ON READER SERVICE CARD

RELIGION

Bible Study on Disk or CD-Rom

Full Featured. Fast & Friendly Bible study software.
As the leader in Bible study software since 1981
we have continued to listen to our customers
and provide them with the tools they need.
Call for a FREE catalog. <http://www.brs-inc.com/bible>

BIBLE RESEARCH SYSTEMS

2013 Wells Branch Pkwy. #304, Austin, TX 78728
(800) 423-1228 (512) 251-7541

ADVERTISE IN THE DIRECTORY

Advertise in the Directory!

Make sure you're part of the resource directory that reaches
further than any other directory, delivering 625,000 targeted
active buyers! All this at a very low cost!

For more information on advertising,
call 800/888-8622

ACCOUNTING SOFTWARE

COMPLETE BUSINESS SOLUTIONS

One-stop shop for hardware, software, financing and services
for any size business. Our accounting programs range from
basic to sophisticated multi-user systems plus Point of Sale,
Inventory, Invoicing and Payroll packages. Call for a catalog or
e-mail us at info@maxworld.com.

MAX COMPUTERS • (800) 656-6299

1506 25th Street, San Francisco, CA 94107
<http://www.maxworld.com/> • Fax (415) 695-0257

CIRCLE 565 ON READER SERVICE CARD

COMPUTER TRAINING

Video Training for MACS

Clearly explained, easy-to-follow 4-tape set shows how to use
your Mac more productively. Covers the Mac OS, word-
process, spreadsheets, file-management tips, much more!
400 minutes of expert training for only \$89.95.
Visa/MasterCard. 30-Day Money Back Guarantee.

SCRIBBLERS MEDIA, INC.

1775 N. State Street • Girard, OH 44420
(800) 860-2324 (24hrs) • www.scribblers.com

CIRCLE 576 ON READER SERVICE CARD

GENEALOGY SOFTWARE

REUNION®

The family tree software rated best by Macworld (6/95),
MacUser (1/96), MacHome Journal (4/95). Create large wall
charts, perfect for family reunions! To order call
MacWarehouse (800)255-6227. Free demo on CIS, AOL (key-
word: roots) and our Web site: <http://www.LeisterPro.com>.

LEISTER PRODUCTIONS

P.O. Box 289 Mechanicsburg, PA 17055
tel: (717)697-1378 • e-mail: info@LeisterPro.com

MONITORS

Refurbished 17" & 20" Color Monitors

Sony GDM 1602 17" RGB Color, .26 dot pitch. Supports
832x624 pixel display. 90 Day replacement warranty...\$399.

Sony GDM 1960 20" RGB Color, .29 dot pitch. Supports
1024x768 pixel display. 90 Day replacement warranty...\$699.

DFI COMPUTING

181 Salem St., Malden, MA
MC/VISA/AMEX 1-800-390-7020

CIRCLE 579 ON READER SERVICE CARD

COLOR POSTCARDS

500 4"x6" color Postcards for \$95!

Effective, inexpensive way to promote your business.
Great for product and upgrade announcements. Printed
on high-quality stock using state-of-the-art printing tech-
nology. Your order will be ready in 2 weeks.

PAPER CHASE PRINTING

7176 Sunset Blvd., Los Angeles, CA 90046
800-36Paper • fax: 213-874-6583 • chasepaper@aol.com

CIRCLE 574 ON READER SERVICE CARD

DRIVE SALES & REPAIRS

FLOPPY DRIVE REPAIR & SALES

Mac 3.5" 400k, 800k, & 1.44 MEG (Repair) . . . \$40.00
Advanced Exchange . . . \$50.00 to \$85.00
New & Refurbished Drives . . . CALL
Price includes most parts, cleaning & alignment. 1yr
warranty on repair, 2yrs on new drives. Schools + Gov't.
PO's accepted. Expert Data Recovery.

UPTIME COMPUTER SUPPORT SERVICES

<http://www.scvnet.com/~uptime>
Valencia, California 805-254-3384 Fax 805-254-1950

CIRCLE 571 ON READER SERVICE CARD

LASER & INK JET PRINTER LABELS

"Nobody But Nobody Beats Our Prices"

Unsurpassed quality-reliable, durable, printer safe. Full selection
- all popular sizes, styles including exclusive repositionable and
"see through" labels, mailing and permanent white. Money back
guarantee. Visa/Mastercard, Direct from manufacturer.
URL: <http://desktop.meyers.com>

DESKTOP LABELS

7277 Boone Ave. N., Mpls, MN 55428-1519
800-241-9730 fax: 612-531-5764

CIRCLE 566 ON READER SERVICE CARD

POWERBOOK BATTERIES & RAM

Your Best Battery & RAM Source!

From PB 100 to 5300, Erudite has what you need to stay
mobile...at prices that won't slow you down. We feature
power products from BTI, Absolute, Xtend, memory from
Viking, Southland — all new & backed by warranty. Call or
e-mail for your best price! Visa/MC/Amex/Discover Accepted.

ERUDITE PRODUCTS CORP.

409 Grand Ave., Englewood, NJ 07631 800-310-8505
Email: sales@EPC-Online.Com, www.epc-online.com

CIRCLE 577 ON READER SERVICE CARD

**"This is my favorite section of the magazine.
I read these ads more than the regular
ones. I love to shop and compare prices."***

Macworld
SHOPPER

*Harvey Communication Measurement Report

— Assoc. Director of Development
Opera

**Contact Macworld on
how to advertise.
(800) 888-8622**

continued from page 218



ting out two hours of upload time. Brilliant!

I dial up the Internet address he gives me. My screen says: "Welcome to the Transgender Forum." My wife walks by with a quizzical look. "Long story," I mutter.

I find the secret folder Sue's husband set up for me and start downloading.

Sunday, 8 p.m.

I've got the Quark files from Nancy and Acrobat Exchange from Sue. Bullwinkle, my eccentric cocker spaniel, shares my excitement; he jumps onto my lap, and from there onto my desk.

Unfortunately, Nancy forgot to send the book fonts with the Quark files. Worse, I'm having no luck making those  and  symbols show up in the e-book. The font, called Chicago Laser, works only if it's installed in the System Folder. But the book's readers shouldn't have to install a font. I'd much rather embed the font into the e-book itself. Of course, embedding a font is one of Acrobat's specialties—but you can't do so *after* the Acrobat file has been created. It's too late for the 30 chapters from Convert-O-Corp.

I try installing Chicago Laser directly

into the big Acrobat file using the ancient Font/DA Mover program. It doesn't work.

Monday, 3:30 a.m.

Long into the night, I wrestle with the accursed font. Finally, I give up: I'll have to make the book's readers install the font after all. To make it easier, I create an installer using Aladdin Installermaker. An hour into my new project, a strange, low-pitch rumble emanates from the Mac's direction.

"Oh, no!" I cry, clutching its case. "Don't die on me now!"

But the sound isn't coming from inside the Mac. Brow furrowed, ear cocked, I trace the sound. At the far end of the desk, I find the source. It's Bullwinkle, snoring happily.

Monday, 10 a.m.

I've been checking AOL all night long; at last, I receive the fonts from Nancy. I frantically download the 2MB bundle. "Hurry up!" I yell at the Mac. "File's done!" it finally yells back.

I try unstuffing the downloaded file. Beep! "The data fork is damaged. Do you want to continue working with it?" Horrified, I click on Yes—and the StuffIt file

promptly deletes itself. Some hiccup, some burst of static, has corrupted the fonts file—and with it, any hopes of winning this insane race against time. I'm devastated.

I'm about to try downloading the fonts again—when I notice another waiting e-mail. I don't recognize the address, but the title is The Missing 3 Chapters.

It's from Convert-O-Corp . . . from Brian! It's Plan B, come to save me! Late last night, he arrived home, got my 59 messages, and stayed up all night preparing the missing chapters. Way to go, Bri!

As the clock ticks down, Acrobat Exchange merges the three new chapters into the main e-book . . . my local service bureau burns the new master CD in 20 minutes . . . I bolt to Fed Ex . . . and that baby gets airborne.

The Upshot

Ever have trouble getting online? Ever stay up all night trying to meet a critical deadline? Ever wonder if the technology revolution has even occurred yet?

You will. **m**

Contributing editor DAVID POGUE is coauthor of *Macworld Mac Secrets*, fourth edition; e-book included.



Use it as a phone.

Internet Phone
\$49.95

Use it for voicemail.

Internet
VoiceMail \$29.95

Use it for both.

Talk for free over the Internet.

TO ORDER:
Call 1-800-843-2289 x301

 **VocalTec**

35 Industrial Pkwy, Northvale, NJ 07647

To download a FREE copy
of our innovative software,
visit us at:

[www.vocaltec.com/jump/
demo424.htm](http://www.vocaltec.com/jump/demo424.htm)

© VocalTec Ltd. All rights reserved. VocalTec Inc., Internet Phone and Internet VoiceMail are registered trademarks of VocalTec Ltd. Microphone not included.

The Desktop Critic

by David Pogue

48 Hours in Cyberhell

EVER BATTLE A DEADLINE WHEN NOTHING WORKS RIGHT? YOU WILL.

YOU'VE GOTTA LOVE those AT&T commercials. "Ever sent a fax from your wristwatch? Ever watched TV inside your contact lenses? Ever sent e-mail in the shower? You will." No, you won't.

The weekend I've just had suggests that we're not quite ready to start glorifying technology.

Here's the setup: Fellow columnist Joe Schorr and I had just written a 1200-page book. The highlight of the accompanying CD-ROM was to be a searchable electronic version of the book (for people who'd rather carry around a 16-meg data file than a 16-pound book).





So, how do you make an electronic file out of a paper book? The publisher sent the book's QuarkXPress files to a company I'll call Convert-O-Corp. They used Adobe Acrobat to turn the Quark files into a searchable edition on CD. Which left 48 hours for a simple wrap-up process: I would approve the final CD master; a duplication plant would bind the CDs into the books.

That was the plan, anyway.

Saturday, Noon

Whooping happily, I grab the CD prototype out of the Fed Ex man's hand. I race up to my attic office and whip the CD into my Mac, double-click on the electronic book file, and crash. Not the Mac—me.

One glance has revealed the horrible truth: Brian, the guy at Convert-O-Corp who created the e-book, has *left out* 3 of 33 chapters. Way to go, Bri.

To make matters worse, the 42 million  and  symbols show up throughout the book as  and  characters. Can you say *missing font*?

The cover letter says that the disc must be at the CD plant, 3000 miles away, by the end of Monday, ready for duplication. If not, the book will miss its heavily promoted bookstore debut.

But do I panic? No way! Tight deadlines? Ha! I've got Macintosh—the power to be my best!

I am pumped.

Saturday, 4 p.m.

I am bummed. I've realized how dismal my odds really are. Convert-O-Corp used Adobe Acrobat to create the e-book. To edit an Acrobat document, I need something called Acrobat Exchange—which I don't have. Furthermore, to re-create the missing chapters, I need the original QuarkXPress files—plus the correct fonts. I don't have those, either.



I call Nancy, the publisher. She says she'll e-mail the files and fonts to me. Next I call coauthor Joe. Bingo—he's got Acrobat Exchange! He says he'll e-mail it to me. Suddenly I'm a software pirate. At this point, I don't care: overnight mail order's not fast enough.

Plan A: Once I have the fonts, files, and Acrobat Exchange, I'll generate the missing chapters. Monday morning, I'll dash to a local service bureau, burn a new master CD, and use Fed Ex's same-day delivery to ship it to California, expense be damned. It's a crazy, way-out plan, but it *just might work*.

Saturday, 11 p.m.

Six hours later. Still no e-mail from Joe or Nancy on America Online. Where could they be?

I start formulating a Plan B—for Brian. I leave frantic messages at Convert-O-Corp, at his home, everywhere. I speed-dial his beeper number every 15 seconds. If he's wearing that beeper and he's sitting in a theater somewhere, I've just made him the most hated man in America.

Sunday, 8 a.m.

Still no files from Joe or Nancy. I read the explanation in the *New York Times*. I've apparently managed to have my cybercrisis on the exact day America Online adopted its flat-rate, unlimited-use pricing scheme. The article says that yesterday, AOL recorded 8 million attempted dial-ins—fascinating, since AOL only *has* 7 million members. I get the feeling Joe's and Nancy's e-mail didn't make it past the deluge of chat room-crazed teenagers.

Sunday, 2 p.m.

"A huge storm is brewing," Nancy says through bursts

of static. "The phone lines are so noisy, I can't get online at all." She says she'll try again to send the Quark files and fonts.

But Joe's gone for the weekend. Great. Where will I get Acrobat Exchange? I call Susan, a desktop-publishing queen. "Please, Sue, please tell me you have a copy of Acrobat." She does. But it's a big file; there's no time for her to upload the file (two hours) and for me to download it (two hours). I suggest we go modem-to-modem. But wait: she's got a better idea. Her husband runs a Web site off his computer there at the house; I can dial in to retrieve it, cut-

continues on page 217

What *was* on your PowerBook?

"Losing" your PowerBook is a harsh blow, no question about it. But what's even worse is losing all your files.

Hardware can be replaced, but you may never recover your data. Not to mention all the time and energy invested in creating those files.

There's only one real solution—regular and reliable backups. And if it wasn't so hectic every time you got back into the office you'd remember to do it. Instead you just keep your fingers crossed and hope that today is not the day when you lose everything.

Wouldn't it be great if every time you plugged your computer into the office network, it would get backed up without you even thinking about it?

That's why you need Retrospect Remote.*



Just plug your computer into the network and Retrospect Remote's unique Backup Server™ automatically goes to work. Backup Server patrols your network looking for Macintosh, Windows 95, and Windows NT computers in need of backup. Then it backs them up in priority order—the one with the oldest backup gets backed up first. This simple innovation makes backups conform to your schedule—and everyone else's, too.

For more information on how you can protect your productivity, call 1-800-982-9983 for your free white paper on mobile computing.

Because even if your computer checks out, your data is always checked in.



It's unanimous. MacWeek says Retrospect is "the best of the breed." MacWorld writes "Retrospect leaves the competition in the dust." And MacUser reports "no other backup utility can match its breadth or depth."



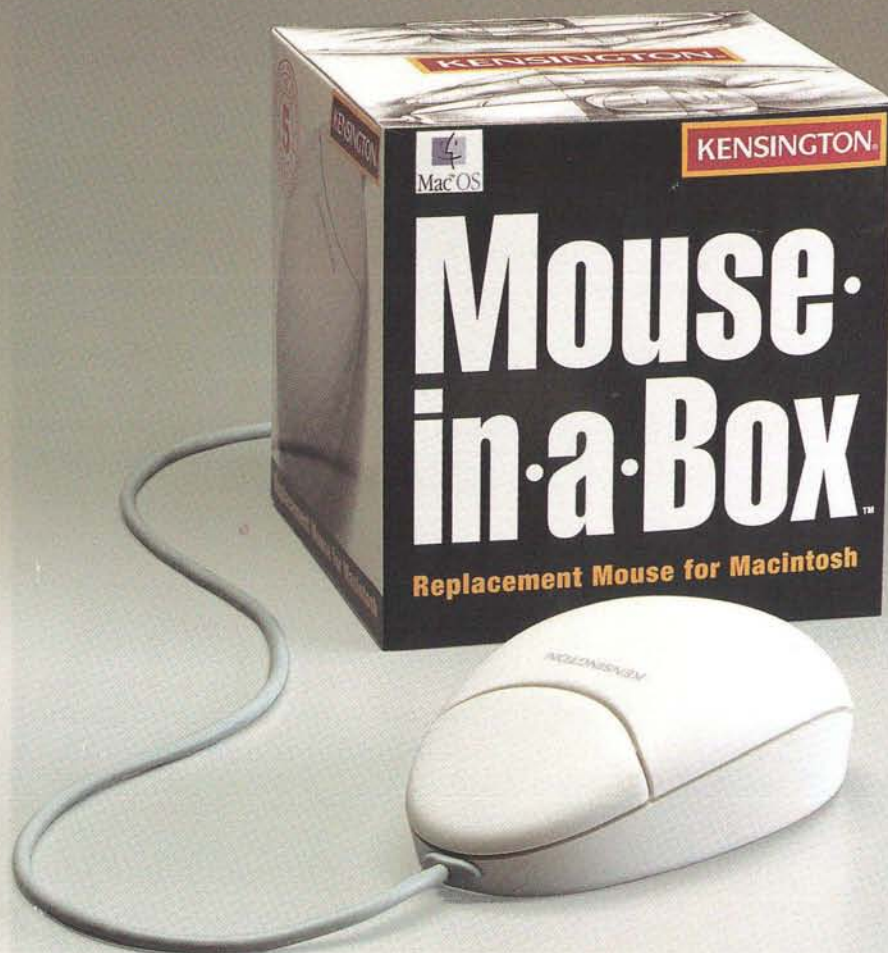
If you're not on a network, we still have you covered with our single user version, Retrospect-3.0.



To go forward, you must backup.®

©1996 Retrospect Remote and Retrospect are registered trademarks of Dantz Development Corporation. All other trademarks are property of their respective holders. Dantz Development Corporation, 4 Orinda Way, Building C, Orinda, CA 94563. Phone: 510.253.3000. Fax: 510.253.9099. Internet: info@dantz.com, upgrades@dantz.com, www.dantz.com.

Circle 26 on reader service card



Sometimes, simpler is better.

No fancy name. No fancy instructions. Just take it out of the box. Plug it in. Get back to business.

It's Kensington's Mouse•in•a•Box. And it has everything you want in a mouse without being complicated to use.

Best of all, it's a Kensington mouse. That means a quality mouse with a 5-year warranty

and toll-free technical support. It also means a no-risk 90-day trial period.

For more information, call 800-535-4242, or visit our Web site at www.kensington.com.

Mouse•in•a•Box works right out of the box. It's 100% Macintosh compatible.

What could be simpler? Or better.

PC Connection
1-800-986-2259

MacWAREHOUSE
1-800-255-6227

KENSINGTON
www.kensington.com

The Mac Zone
Your Calling Station

MarMail
Creative Computer
Your Mac Companion

APS
Technologies

1-800-258-2088 1-800-222-2808 1-800-374-5681

Mouse•in•a•Box is a trademark and Kensington is a registered trademark of Kensington Microware Limited. All other trademarks are the property of their respective owners. © 1997 Kensington Microware Limited. 1/97

Circle 1 on reader service card